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**TRAINING AND EDUCATIONAL OPPORTUNITIES
IN
AGROFORESTRY**

**A DIRECTORY
OF INSTITUTIONS IN
THE UNITED STATES AND OVERSEAS**

**Julie Bournes
and
Susan Huke**

MARCH 1991

**United States
Department of
Agriculture**



National Agricultural Library

TRAINING AND EDUCATIONAL OPPORTUNITIES

IN

AGROFORESTRY

A Directory
of Institutions in
the United States and Overseas

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Julie Bournes
and
Susan Huke

March 1991

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Washington, D.C.

PREFACE

This Directory contains a listing of educational programs and training courses in agroforestry which are offered in various regions of the world. It includes programs and courses which focus specifically on agroforestry as well as those which have a significant agroforestry-related component.

The primary audience for the Directory is the staff of USAID missions with responsibility for Agriculture and Natural Resource programs and managers of USAID-sponsored projects seeking agroforestry-related training for project personnel. Accordingly, the Directory includes graduate-level degree programs, long-term (eight months to one year) certificate or diploma programs for university graduates and professionals, and short-term professional training courses ranging from several weeks to six months in length.

Inquiries were sent to the most readily identifiable universities and research and training organizations in Africa, Asia, Latin America, Europe and the United States. However, the list of organizations contacted is in no way exhaustive, and the results obtained to date indicate that the number of these programs is likely to grow in line with increasing interest in agroforestry. For example, Washington State University's Department of Natural Resources is currently considering a proposal to establish a Ph.D. program in Environment and Natural Resources which would offer an emphasis in agroforestry. The School of Natural Resources at the University of Missouri now provides for coursework in agroforestry and social forestry in the form of individual reading courses, but hopes to offer a regular course in agroforestry in the future. Similarly overseas, the International Council for Research in Agroforestry (ICRAF) has initiated efforts to develop agroforestry curricula for graduate study in Africa, and a number of universities and colleges there (such as the Sokoine Agricultural University in Tanzania) intend to establish M.S. level degree programs in agroforestry in the coming years.

At present, however, students at most universities with an interest in agroforestry are encouraged to pursue this interest by drawing on the interdisciplinary offerings of various departments in individually-designed programs, as formal programs or specializations in agroforestry usually do not exist.

Most degree programs identified in this listing allow the study of agroforestry as an interdisciplinary specialization (formal or informal) within another field, such as Forestry or Natural Resources. Such programs usually offer one or two regularly-scheduled courses which focus specifically on agroforestry or social forestry and which attempt to offer an overview by addressing a variety of social, economic, ecological, technical, institutional and other aspects. Exceptions include the Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE), which offers an M.Sc. in Agroforestry and the University of Science and Technology in Ghana, which offers a one-year post-graduate diploma in agroforestry.

The training courses take a somewhat greater variety of approaches to agroforestry, with some focusing primarily on a specific aspect or application of this discipline, and others attempting to provide a more comprehensive

overview. For example, the Nitrogen-Fixing Tree Association (NFTA) course focuses on the value of Nitrogen Fixing Trees (NFTs) in sustainable land use systems, and the course offered by Mississippi State University focuses on tree seed technology for agroforestry and other disciplines. The International Tree Crops Institute (ITCI) offers a course on dryland agroforestry, and the University for Peace in Costa Rica offers a course on agroforestry for the humid tropics. Many training courses confer a certificate upon completion.

It is hoped that this Directory will enhance awareness of the growing number and variety of agroforestry-related training and educational opportunities, and thereby contribute to the formation of international professional expertise and institutional capability in agroforestry. As stated above, this list of organizations is not comprehensive. The Forestry Support Program welcomes any information on additional organizations for inclusion. Any corrections or additions to the current entries are also welcome and should be addressed to: Susan Huke, International Forestry, USDA/FS, P.O. Box 96090, Washington, D.C. 20090-6090.

This document was prepared under the guidance of Susan Huke, Agroforestry Coordinator, Forestry Support Program. The principal author was Julie Bournes, Agroforestry Consultant. Additional support was provided by Mark Buccowich. Special thanks are due to Michael Swisher, for proof-reading and adding several important entries, and to Colleen Poonawala for her expert clerical assistance.

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UNIVERSITIES AND ORGANIZATIONS IN THE UNITED STATES

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I. INSTITUTIONS IN THE UNITED STATES AND CANADA

1. **Institution:** Colorado State University
Department of Forest and Wood Sciences
College of Forestry and Natural Resources
Ft. Collins, CO 80523

Contact: Dr. Robert L. Sanford, Jr.
Asst. Professor
Tel: 303/491-6911; Fax: 303/491-0279

Program: The Department of Forest and Wood Sciences offers an International Forest Resource Management (IFRM) program which focuses on appropriate and integrated methods for forestation, forest management, and forest products use in the context of long-term sustainability of resources and economic development via product utilization. This program is designed for students from all countries with a wide range of technical backgrounds and resource management goals. Students can pursue a Master of Science or a Doctor of Philosophy.

In support of IFRM, the Department offers a graduate course entitled "Agroforestry" in the fall semester. The course covers humid and dryland agroforestry. It includes a historical overview and analysis of traditional techniques, and considers: species selection, ecology, soils, socio-economic contexts, silvopastoral systems, research and management, and experimental design.

The Department also offers a course entitled "Development Forestry" which covers community based forestry practices for wood production. This course covers technology and labor management techniques, commercial and noncommercial products derived from native trees, and social, political and economic considerations of forestry products.

Students are encouraged to draw on offerings from other departments, such as the Department of Earth Resources, the Department of Fishery and Wildlife Biology, and the Department of Range Science. Among the available courses are: "Traditional Farming Systems", "Soil-Plant Nutrient Relationships", "Ecology and Management of Dry Forests", "Farming Systems Research and Development", "Plant Ecology", and "Forestry in International Development".

Training Course:

Non-degree training programs offered by the International School of Forestry and Natural Resources are tailored to the specific objectives of participants and sponsoring agencies

in all natural resource areas, including agroforestry. In June 1991 the School will offer a three-week course entitled "International Integrated Resource Management". This course will focus on land management planning for forest ecosystems, emphasizing techniques to manage for multiple resources and resource integration, including agroforestry. The basic fee for this course will be US\$3,000.

Institutional Setting and Facilities:

Colorado State University is located approximately 105 km (65 miles) north of Denver. It was established in 1870 as Colorado's land-grant college, and consists of eight colleges, including Agricultural Sciences, Natural Sciences, and Veterinary Medicine, as well as Forestry and Natural Resources. Various state and federal agencies cooperate with the International School of Forestry and Natural Resources by offering opportunities for visits, consultations, and research. The College of Forestry and Natural Resources is committed to international cooperation in education and research, and its faculty participate in research and technical assistance worldwide.

Costs:

Tuition and living costs for degree programs are \$13,500 per academic year (1990). The cost of one semester in the International School is \$6,900. Training program costs vary with the length of the course, associated travel costs, and particular design requirements. Basic program costs may range between \$1,000 for one month to \$4,200 for a semester.

Foreign Students:

The College of Forestry and Natural Resources claims to have more international students than any other U.S. forestry school. In 1989/90, 86 foreign students were enrolled in the College. The Graduate School requires a minimum TOEFL score of 550 for admission, although students with marginal scores may enter the International School and take intensive English courses to gain competency for full admission.

The most common financing sources for foreign students included UNDP, USAID, UNFAO, and UNWMO.

2. Institution: Cornell University
Department of Natural Resources
Fernow Hall
Ithaca, NY 14853

Contact: James Lassoie, Chairman
Department of Natural Resources
Tel: 607/255-2298; Fax: 607/255-0349

or: James E. Haldeman
Assistant Director/Training Officer
International Agriculture Program
Tel: 607/255-3035; Fax: 607/255-1005; Tlx: 559020 INTAG
CGNET: CGI 209

Program: The Department of Natural Resources (DNR) offers a course entitled "Seminar in Agroforestry" (Natural Resources 615) as part of their M.P.S., M.S., and Ph.D. degree programs in Natural Resources. This seminar is offered every spring semester and covers technical and program aspects of agroforestry, including agronomic, forestry, socioeconomic, and institutional factors. Conceptual and methodological approaches to agroforestry research design and program development are emphasized. The course depends heavily on active input and participation by students and guest speakers representing a variety of academic disciplines and bringing previous research or work experience in agroforestry to the seminar. This course has been offered every year since 1985.

The DNR is in the College of Agriculture and Life Sciences (CALS), which has 450 faculty members teaching courses in the following areas: Agricultural and Biological Engineering; Animal Sciences; Biological Sciences; Entomology; Food Science; International Agriculture; Natural Resources; Plant Breeding; Plant Pathology; Rural Sociology; and Soils, Crop and Atmospheric Sciences. Some courses focus specifically on the tropics, such as "Production of Tropical Crops", "Tropical Livestock Production", and "Tropical Forages", and many courses in International Agriculture emphasize a multidisciplinary approach to agricultural and rural development. These offerings constitute an interdisciplinary basis for the study of agroforestry. Nearly one-third of the faculty at CALS have had substantial experience abroad.

Training Course:

CALS established the International Agriculture Program (IAP) in 1963 to strengthen opportunities to study agriculture and rural development in the Third World. IAP has designed and conducted several hundred technical training programs, some

in English and Spanish, with durations ranging from one week to one year. The trainings are tailored to specific audiences such as program developers, evaluators, and researchers responsible for implementing rural development programs. IAP has held two major AID training contracts and administered workshops for AID and World Bank officials. IAP can develop programs in many areas, including agronomy, animal science, plant breeding and pathology, environmental sciences, and rural sociology, and intends to organize courses in agroforestry in the future.

Institutional Setting and Facilities:

Cornell University is the largest land-grant university in New York State. Facilities include Mann Library, the second-largest agricultural library in the United States; the Center for Analysis of World Food Issues Library Collection; and the New York State Agriculture Experiment Station. The University established the Cornell International Institute for Food, Agriculture and Development (CIIFAD) in 1990 to advance agricultural production and food distribution in developing nations and to explore alternative strategies for sustained improvement in food production through interdisciplinary research.

Costs:

Non-resident tuition and fees for graduate study at the University are \$6,460 for the academic year (1990). The Seminar in Agroforestry is a 2-credit course with a cost of approximately \$800.00.

Foreign Students:

Approximately ten percent of the graduate students in the Department of Natural Resources and about fifteen percent of all CALS students are foreign students. Cornell University requires a minimum TOEFL score of 550.

English as a Second Language courses and other intensive English training opportunities are available.

3. **Institution:** Michigan State University
Department of Forestry
126 Natural Resources Bldg
East Lansing, MI 48824-1222

Contact: Michael A. Gold, Director
International Forestry Programs
Assistant Professor, Agroforestry
Tel: 517/355-0090; Fax: 517/336-1143; Tlx: 650/264-1762 MCI

Program: Michigan State University offers new multidisciplinary programs in agroforestry, community (social) forestry, and international resource economics for M.S. and Ph.D. candidates in the Department of Forestry. Supporting these programs is an integrated set of courses focusing on the theme of sustainable forest resource management in international development, including: Forestry in International Development (Forestry 454, Fall Term); Agroforestry Systems (Forestry 464, Winter Term); and Social Forestry (Forestry 474, Spring Term). The multidisciplinary programs are co-sponsored by the Center for the Advanced Study of International Development and the Institute of International Agriculture.

Training Course:

The Department of Forestry arranges a variety of short courses in agroforestry and social forestry on an "as needed" basis. It has presented a one-month specialized Professional Forestry Training Program in Multiple Use Forest Management to forestry professionals from Taiwan on three occasions and from India in 1988. The Department also designed an eight-week program in Integrated Social Forestry for UNDP/Philippines focusing on communications, extension and policy in 1989.

The Department of Forestry has presented a seminar on agroforestry to the University of Michigan's annual International Forestry Seminar for the past five years. This seminar provides a general overview of institutional, social and biological issues and constraints and is addressed primarily at university and professional decision-makers from the international community.

Institutional Setting and Facilities:

The Department of Forestry maintains permanent, full-time faculty positions in international development and agroforestry and in natural resource sociology (community/social forestry). Its faculty have a long history of involvement in international programs. Current

activities include a small-farm silvopastoral management systems project in Jamaica, a tree improvement and forest biotechnology program in Indonesia, an alley cropping research project in Nigeria, and others. The Department is currently hosting a USAID-funded Ph.D. Fellowship Training Program for Winrock International under the Forestry/Fuelwood Research and Development (F/FRED) project. This project is developing baseline data on multipurpose tree species for small farmers.

Costs: Out-of-state tuition and fees for graduate study are \$15,800 for the academic year (1990).

Foreign Students:

In recent years, foreign students have averaged 45% of all graduate students in the Department of Forestry. Most foreign students rely on outside funding from such sources as USAID, UNFAO, the World Bank, Winrock International, Fulbright, and the Agroforestry Research Network in Africa (AFRENA). The Thoman Fellowship is available to international Ph.D. candidates whose discipline is related to food production, human nutrition, or food security strategies.

The University requires a minimum TOEFL score of 550, with no subscore below 52.

Michigan State University has an English Language Institute.

4. **Institution:** Mississippi State University
Office of International Programs
P.O. Box 6342
Mississippi State, MS 39762

Contact: Dr. Ronald A. Brown
Director
Office of International Programs
Tel: 601/325-3204; Fax: 601/325-1215; Tlx: 53882 OIP

Training Course:

The Office of International Programs and the Department of Forestry offer a four-week summer course entitled "Forest Tree Seed Technology". This course provides specialized instruction and training in aspects of seed technology related to the development and operation of a comprehensive tree seed program. The course is designed for mid- and upper-level professionals involved in forestry and related natural resource disciplines concerned with afforestation, reforestation, agroforestry, and forest management for fuelwood production, conservation and erosion control.

The course includes consideration of seed programs; seed production; seed harvesting, conditioning and storage; seed testing procedures; and seed utilization. Visits are scheduled to commercial seed companies, a national tree seed laboratory, nursery operations, and an erosion control project.

The course has been offered four times to date. It will next be offered in June, 1992.

Institutional Setting and Facilities:

Mississippi State University is a Land-Grant institution whose academic units include the School of Forest Resources, the College of Agriculture and Home Economics, the College of Veterinary Medicine, and specialized units such as the Food Science Institute, the Remote Sensing Program, the Water Resources Research Institute, the Forest Products Utilization Laboratory, the Southern Forest Experiment Station, the South Central Poultry Research Laboratory, and the Center for International Programs. The School of Forest Resources offers M.F., M.S., and Ph.D. programs in Forestry.

Costs:

The cost per participant of the summer course is approximately \$3,550. This includes a \$1,750 course fee which includes training fees, books and materials, field trip transportation, and airport pickup and return. The \$1,800 maintenance allowance includes room and board and field trip expenses. Previous international students have been sponsored by UNFAO and USAID.

Foreign Students:

There are approximately 600 international students enrolled in the University as a whole. There are no English language training opportunities offered in conjunction with the training course. Applicants should have English proficiency as well as a B.S. degree in Forestry, Agriculture, or Biological Sciences.

5. Institution: Nitrogen Fixing Tree Association (NFTA)
P.O. Box 680
Waimanalo, HI 96795

Contact: Jim Chamberlain
Program Officer, Asia & Pacific
Tel: 808/259-8555; Fax: 808/262-4688

Training Course:

NFTA, in cooperation with the University of Hawaii at Manoa and the Nitrogen Fixation by Tropical Agricultural Legumes (NiFTAL) Program, offers a short course entitled "Use and Management of Nitrogen Fixing Trees in Sustainable Rural Land Use Systems in the Tropics". The purpose of this course is to provide an introduction to the value of nitrogen-fixing trees (NFTs) in reducing dependency on commercial nitrogen fertilizer while meeting farmers' needs for fuelwood, fodder, shade, mulch, and building materials. Specifically, it addresses the following areas:

- 1) the value of NFTs in environmentally sound, economically feasible, and socially desirable small-scale agroforestry systems;
- 2) the identification and management of important NFT species;
- 3) NFT management systems for food production, erosion control, fodder, green manure, shade, poles, pulp and building materials;
- 4) symbiotic nitrogen fixation and the role of Rhizobia and inoculation technology;
- 5) assessment of the need to inoculate NFTs;
- 6) assessment of conditions under which the use of NFTs and Rhizobium inoculation can increase agricultural production.

The course is organized into the following modules:

- 1) Introduction to NFTs
- 2) Species Selection for Environment and Human Needs
- 3) Establishment and Maintenance of NFT Plantings
- 4) NFT Management Systems
- 5) Financial and Social Aspects of NFTs
- 6) Overview of Biological Nitrogen Fixation (BNF)
- 7) Legume/Rhizobium Symbiosis
- 8) Rhizobium Inoculant Technology
- 9) BNF for Planners and Extension Agents
- 10) Field Application of BNF

The two-week course will be offered from July 15-26, 1991. NFTA has offered approximately ten similar training courses over the past five years.

Institutional Setting and Facilities:

The course takes place on the University of Hawaii Manoa campus, at the NFTA headquarters in Waimanalo, and at the NiFTAL laboratories and field sites on Maui. Lectures and practical training are provided by faculty of the College of Tropical Agriculture and Human Resources of the University of Hawaii at Manoa, and by staff of NFTA and NiFTAL.

Costs:

The course fee is \$2,487.00, and dormitory housing and meals are \$913.00, for a total cost of \$3,400.00. This amount includes instruction, materials, and local air and ground transportation during field trips. Participants should bring an allowance of at least \$20.00 per day to cover other miscellaneous expenses, such as lunches and all meals on Sundays.

Foreign Students:

There are no English language training opportunities available at NFTA. Competence in reading, understanding and speaking English is required for admission to this course. Applicants must also be at least 21 years of age.

6. **Institution:** North Carolina State University
Department of Soil Science
Tropical Soils Research Program
P.O. Box 7619
Raleigh, NC 27695

Contact: Cheryl A. Palm
Assistant Professor
Tel: 919/737-2838; Fax: 919/737-7422

Program: North Carolina State University offers M.S. and Ph.D. programs in Forest in Soil Sciences. Students pursuing these degrees may specialize in agroforestry by drawing on course offerings in the Soils Science, Forest and Crops Science Department, including a course in agroforestry offered jointly by the Soils Science Department and the College of Forest Resource. This course is offered during the fall semester each year and considers the potentials and constraints of a variety of agroforestry systems, such as home gardens, multistrata production systems, tree crop plantations, managed fallows, and alleycropping, in a variety of ecological zones and socioeconomic conditions. Production agriculture and forestry, sociology, economics and other aspects of this discipline are discussed. This is a three-credit course which is cross-listed in the Department of Soil Science (SSC 590) and the Department of Forestry (FOR 592, Special Topics). The course format includes lectures, student presentations and critiques, and an exam or term paper.

The course is intended primarily for graduate students in forestry and soils. Students with backgrounds in economics, policy, and sociology are especially encouraged to participate.

Agroforestry-related teaching and research at North Carolina State focus principally on the humid tropics. Areas of particular strength include tree-related aspects of agroforestry; in addition, agronomic aspect be considered through offerings of the Crops Science Department.

Institutional Setting:

North Carolina State University has a strong program in international studies. Research sites are available for graduate students in the lowland tropics of the Amazon region, and there is a research station in Malaysia.

Costs: Out-of-state tuition and fees are \$2,902 per semester for a courseload of nine or more credits (1990 figures). There are limited scholarship opportunities for foreign students.

Most previous foreign students have been funded by USAID, the World Bank, and the Rockefeller Foundation.

Foreign Students:

The University requires a minimum TOEFL score of 550 for admission to graduate study. The Department of Foreign Languages offers English as a Second Language courses.

There are many foreign students from Africa and Latin America pursuing graduate studies in Forestry and Soils Science at North Carolina State University, there are also some students from Southeast Asia and Central America.

7. **Institution:** Texas A&M University
Forest Science and Range Science Departments
College Station, TX 77843-2135

Contact: Richard F. Fisher, Head
Forest Science Department
Tel: 409/845-5033; Fax: 409/845-6049

or: Dr. Thomas L. Thurow
Range Science Department
Tel: 409/845-3765; Fax: 409/845-6430

Program: Students at Texas A&M University can pursue a M.S. or a Ph.D. in Forest Science with a concentration in agroforestry by drawing on course offerings from the Forest Science, Range Science, Fish and Wildlife Science, Soil and Crop Science, Economics, Sociology, and other departments. The Department of Range Science offers a course entitled "Agroforestry" (RENr 621) every year in the spring semester. This course considers basic agroforestry concepts through a lecture and discussion format and drawing on expertise from on and off campus. The course objectives are to: discuss the meaning and scope of agroforestry; understand world bioclimatic patterns as they relate to agroforestry; outline different types of agroforestry systems and their applicability; consider global problems of deforestation and desertification as they relate to agroforestry; address socio-political and economic aspects of agroforestry; and consider the risks and benefits of germplasm introduction and conservation. The course will be team taught by two faculty members from the Forest Science and Range Science Departments.

Students studying agroforestry can choose either a tropical or temperate and a humid or arid focus. Due to its geographic location, Texas A&M offers especially favorable opportunities for the study of agroforestry in arid and semiarid areas, including issues of soil and water conservation and fuelwood production. Texas A&M has a number of research and experimental field stations in the area, and one of the faculty has professional experience in semiarid regions of Africa.

Institutional Setting and Facilities:

The agroforestry program is offered through the Institute of Natural Resources, which was established to facilitate interdisciplinary studies and which has emphases in: 1) Genetics and Biotechnology, 2) Ecology and Ecosystem Management (including the agroforestry program), and 3) Information Science.

Texas A&M is an important public university which emphasizes research in the sciences. It is located between two small towns in east-central Texas, and lies between a southeastern pine forest and prairies and high plains. Due to its location, programs are offered which emphasize both humid forest and semi-arid savanna and grassland ecosystems.

Costs: Tuition and fees for the academic year are \$3,500, and cost of living expenses are \$3,700 per year (1990 figures).

Foreign Students:

Approximately fifty percent of the students enrolled in the agroforestry course are international students with a variety of experience working in this area; in the 1990 class there were students from Brazil, Kenya, Mali, Pakistan, the Philippines, and Somalia. USAID, UNFAO, and private agencies are the most common funding sources for international students. University fellowships are available for students whose GRE scores exceed 1300, and research assistantships are occasionally available. Foreign students cannot be admitted as non-degree students.

The University requires a minimum TOEFL score of 550, although 600 is preferred, for admission. The University offers instruction in English through the English Language Institute.

8. Institution: United States Department of Agriculture (USDA)
Office of International Cooperation and Development
Washington, D.C. 20250-4300

Contact: Short Course Coordinator
Development Resources Division
Fax: 202/245-5960; Telex: 7400228 CDOP UC;

Training Course:

1) The USDA will offer a course entitled "Agroforestry Extension and Training" (USDA TC 170-5) at the University of Florida, Gainesville from August 13 to September 15, 1991. The course is targetted at mid-level professionals from developing countries with backgrounds in agronomy, forestry, horticulture, extension, and/or animal science who are involved in promoting the integration of agriculture, forestry and livestock production among small farmers.

The course will focus on three areas: 1) understanding agroforestry; 2) diagnosis, design and evaluation of agroforestry; 3) agroforestry extension. Topics will include: the principles and potentials of agroforestry systems and technologies; the productive and protective role of agroforestry; biophysical and socio-economic characteristics of land use systems; diagnosis and design procedures; agroforestry options to address identified problems; the design of appropriate agroforestry technologies; economic evaluation; and problems and methods of agroforestry extension.

The course has four components: 1) Participants engage in experiential learning which builds directly on their own agroforestry experiences through active participation and practice; 2) presentations and discussions are used to discuss and analyze topics; 3) there is a one-week practical training in Haiti (or another developing country) to provide "hands-on" experience in the use of Diagnosis and Design techniques; 4) participants will plan for the application of course concepts and approaches upon return to their home countries.

2) In addition, USDA offers a course entitled "Land Use Planning for Community Forestry and Natural Resource Development" (USDA TC 120-10) at the University of Idaho from June 10 to July 19, 1991. The course is designed for land use and regional planners with a limited background in planning, officials who administer planning programs, and natural resource specialists working with land use planning teams. It is especially useful for community or social foresters and rangeland, park and wildlife managers. Course objectives are to enable participants to: 1) define, analyze and evaluate planning processes in the natural

resource management context; 2) learn techniques for involving local people in plan development and implementation; 3) understand principles and methods useful in developing objectives, gathering and analyzing data, and developing and evaluating land use alternatives; and 4) understand techniques for social and economic impact analysis for alternative land uses. Case studies will focus on community forestry, and field trips will be taken throughout the Pacific Northwest to meet with land use planners, resource managers, Native Americans, farmers and ranchers.

3) USDA will also offer a course entitled "Tree Establishment in Arid Areas for Fuelwood and Conservation" (USDA TC 170-8) at the University of Arizona in Tucson, from July 15 to August 9, 1991. This course is designed for mid-level personnel in forestry and related natural resource disciplines concerned with afforestation, reforestation, and forest management for fuelwood production. Participants will learn to: plan, design, and manage tree plantations for windbreaks, erosion control, and fuelwood production; prevent and control wildfires; and adapt this material for implementation through forestry extension techniques. Topics will include: seedling and planting techniques; greenhouse operations; range and watershed management; multiple-use land management; and information and documentation services with an emphasis on arid and semiarid lands. Participants are expected to bring examples of forestry or agroforestry situations in their home countries.

Institutional Setting and Facilities:

The Office of International Cooperation and Development (OICD) of the USDA offers short technical courses in cooperation with U.S. universities for the staff of agricultural and rural development institutions in developing countries. Upon request, OICD can conduct modified versions of the courses offered in the U.S. overseas.

Space is assigned on a first-come, first-serve basis. Enrollment information should be received by OICD at least two months prior to the course start date.

Costs:

The training fee for course #170-5 is \$3,423; the fee for course #170-8 is \$2,428; and the fee for course #120-10 is not yet available. For an additional amount (\$345 for course #170-5, and \$276 for course #170-8), OICD can handle the programming of participants' insurance, per diem, and professional society membership. Insurance is compulsory and costs \$112.

USDA does not fund participants in these courses. Funding is usually arranged through USAID, UNFAO, the World Bank, international development banks, and other host country sponsors.

Foreign Students:

English proficiency is required for participation in all courses.

9. **Institution:** University of Florida
School of Forest Resources and Conservation
Department of Forestry
118 Newins-Ziegler Hall
Gainesville, FL 32611

Contact: Dr. P.K.R. Nair
Professor of Agroforestry
Tel: 904/392-4851; Fax: 904/392-1707; Telex: 568757 UF INTL

Program: The University of Florida offers an interdisciplinary graduate degree program in Agroforestry. Candidates for the degree of M.S. or Ph.D in Forestry (or another department, such as Soils Science) can specialize in Agroforestry; this emphasis is reflected in the courses taken and the thesis or dissertation topic. In the spring, the Department of Forestry offers a 3-credit course in agroforestry. The department also holds a course on Tropical Forestry in autumn. Other courses can be selected from among the following disciplines: forestry, agronomy, soil science, botany, food and resource economics, geography, and anthropology. The University is a member of the Organization of Tropical Studies (OTS) and its graduate students can compete for admission to OTS courses. There are also possibilities for placing graduate students of agroforestry at overseas research sites such as ICRAF in Kenya or CATIE in Costa Rica (see separate entries for these institutions in this directory).

Graduate students pursuing studies in agroforestry may also choose to obtain a Certificate in Tropical Agriculture or to minor in farming systems by meeting certain requirements.

Training Course:

The University of Florida offers a short course entitled "Agroforestry Extension and Training" in cooperation with the USDA Office of International Cooperation and Development (USDA TC 170-5). This five-week course has been offered once every summer since 1989, and is described in detail in this directory under the U.S. Department of Agriculture entry.

Institutional Setting and Facilities:

The School of Forest Resources and Conservation includes the Department of Forestry, the Department of Wildlife and Range Sciences, and the Department of Fisheries and Aquaculture, as well as the Program for Studies in Tropical Conservation. Its Institute of Food and Agricultural Sciences (IFAS) initiated the interdisciplinary program in Agroforestry in 1987 in response to dramatic increases in agroforestry-related activity at the University. The

Agroforestry program maintains an active involvement in international activities by providing technical support to the IFAS International Programs Office. It also cooperates with the University's Centers for African and Latin American Studies.

The University of Florida's subtropical environment and its proximity to tropical developing countries make it a suitable location for agroforestry research for developing country students.

Costs: Out-of-state tuition and fees for graduate study are \$5,729 per academic year (1990 figures).

Foreign Students:

Students seeking admission to the graduate program in agroforestry should have a degree in a relevant field, such as agronomy, food and resource economics, soil science, horticulture, or social sciences, and should apply to the department which most closely represents their interests. The University requires a minimum TOEFL score of 550 for admission to graduate study. The English Language Institute of the University offers English language instruction.

The summer course targets professionals from developing countries.

10. Institution: University of Hawaii at Manoa
College of Tropical Agriculture and Human Resources
Department of Agronomy and Soil Science
1910 East-West Road
Honolulu, HI 96822

Contact: James H. Fownes
Assistant Agronomist in Agroforestry
Tel: 808/948-7530; Fax: 808/956-6539

Program: The Department of Agronomy and Soil Science M.S. and Ph.D. programs in Agronomy, Soil Science, and Horticulture. The Department offers a course entitled "Agroforestry Systems" (Agronomy 480) which considers: the classification of agroforestry systems; important tropical tree species; productivity and nutrient cycling in agroforestry systems; hydrology; erosion control; sustainability; and modeling of tree-based agricultural systems.

The Department also offers a course entitled "Agroforest Ecosystem Analysis" (Agronomy 680), whose topics include: the advanced quantitative analysis of production, nutrient cycling, hydrology, competition, and sustainability with regard to agroforestry systems.

Training Course:

U of H at Manoa with the Nitrogen Fixing Tree Association (NFTA) and the Nitrogen Fixation by Tropical Agricultural Legumes (NiFTAL) Program in offering a two-week summer course entitled "Use and Management of Nitrogen Fixing Trees in Sustainable Rural Land Use Systems in the Tropics", described in detail under the NFTA entry in this directory.

Institutional Setting and Facilities:

The U of H at Manoa is the only U.S. university in a tropical region and has many opportunities for the study of tropical plants and soils. Hawaii's striking gradients in elevation, rainfall, and substrate age provide a "living laboratory" for the study of tropical agroecosystems, and the College of Tropical Agriculture maintains a network of field research stations throughout the various environmental settings. The nearby East-West Center supports research and policy studies by foreign students and professionals, particularly from Asia and the Pacific. In addition, NFTA is headquartered at the College's Waimanalo Experiment Station and cooperates with the College in various programs.

Costs: Tuition for 1990/91 is approximately \$2,405 per semester.

Foreign Students:

The University requires a minimum TOEFL score of 500. English-language training courses are available.

11. **Institution:** University of Idaho
College of Forestry, Wildlife and Range Sciences (CFWR)
Moscow, ID 83843
- Contact:** Mr. A. A. Moslemi
Director of Graduate Programs
Tel: 208/885-6581; Fax: 208/885-6226
- Program:** The Department of Range Resources offered a 2-credit graduate course in agroforestry for the first time in 1990, and will offer it as a 3-credit course in the future. The course considers agroforestry as an interdisciplinary approach to sustainable land management that involves ecological, social, and economic integration of forest and woodland production with grazing and/or agricultural production. This course is particularly suited for students from developing countries.
- Training Course:**
The Department of Forest Resources offers a short course entitled "Land Use Planning for Community Forestry and Natural Resource Development" in cooperation with the Office of International Cooperation and Development of the U.S. Department of Agriculture. This course is described under the entry for the U.S. Department of Agriculture. It has been attended by over 100 participants from 40 countries since 1981, and has also been presented in collaboration with the Indian Institute for Forest Management in Bhopal, India.
- Institutional Setting and Facilities:**
The CFWR manages a 7,300-acre experimental forest, and a 24-acre Forest Research Nursery/greenhouse complex which supports research directed at forest tree seedling improvement, growing hardwood seedlings for windbreaks and shelterbelts, and research plantings. The College administers an experimental area in southern Idaho which offers a site for rangeland ecosystem and grazing studies. There is also an extensive collection of tropical herbarium specimens and slides pertaining to tropical dendrology and ecology. The Natural Resources Communications Laboratory produces multi-media programs for natural resource agencies in the United States and abroad.
- Costs:** Tuition costs for out-of-state students are approximately \$16,000, including living expenses (1990 figures).

Foreign Students:

In 1989/90 there were approximately 47 international students enrolled in the College. A minimum TOEFL score of 525 is required for students in the Department of Forest Resources. English-language training opportunities are available at the Intensive English Institute at Lewis Clark State College, approximately 30 miles away.

Previous foreign students have obtained funding from USAID, the World Bank, and other governmental sources. Students from Brazil may apply for the Foster Fellowship.

12. Institution: University of Montana
School of Forestry
Missoula, MT 59812

Contact: Dr. Stephen F. Siebert
Coordinator
International Resource Management
Tel: 406/243-4661; Fax: 406/243-4510

Program: The School of Forestry offers M.S. and Ph.D programs in Forest Resource Management and Resource Conservation. As part of these programs, it offers two courses on an annual basis which are related to agroforestry. The course entitled "Social Forestry" considers the biophysical and socioeconomic aspects of agroforestry, community forestry, and related systems. It includes discussion of such issues as annual-perennial crop interactions, soil conservation implications, soil fertility factors, land tenure, gender, and food security.

The course entitled "Sustainable Resource Development" provides an analysis of opportunities and constraints concerning the development and management of natural resources on a sustainable basis. This course places a particular emphasis on the humid tropics.

Institutional Setting and Facilities:

The School of Forestry has collaborative working relationships with the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the National Park Service, which can be useful to students in the field of natural resource management.

Costs: The cost of tuition, fees, books, and living expenses is estimated to be \$9,000 per academic year (1990 figures).

Foreign Students:

At present, there are six international graduate students in the School of Forestry. Financing sources for foreign students have included USAID and the Asian Development Bank. Teaching and Research Assistantships may be obtained by foreign students depending on their qualifications. The University has a very supportive Foreign Student Service Program and offers instruction in English as a Second Language. The School of Forestry requires a TOEFL score of 510.

13. Institution: Yale University
School of Forestry and Environmental Studies
205 Prospect Street
New Haven, CT 06511

Contact: John Gordon
Dean
Tel: 203/432-5100; Fax: 203/432-5942; Telex: 5101012363 YALE
FES

Program: The School of Forestry and Environmental Studies offers a Master of Environmental Studies (MES), a Master of Forest Science (MFS), a Master of Forestry (MF), a Doctor of Forestry, and a Doctor of Philosophy. The School offers three graduate-level courses which deal with agroforestry. The "Seminar in Agroforestry Systems" (F&ES 592b), offered in the spring, considers concepts, classification, and types of traditional and innovative agroforestry systems; agroforestry components and their interactions; choice of appropriate tree species; effects of trees on soil conservation; economic analysis of small-, medium-, and large-scale agroforestry; social and community forestry; agroforestry extension; and agroforestry research priorities.

The School also offers "Tropical Forest Ecology" (F&ES 574a), whose objective is to summarize ecological knowledge on tropical forest ecosystems and to demonstrate how this information can be used to manage, conserve and restore forests and to implement alternative tree-based land use schemes, such as agroforestry. Among the topics discussed are: plant-animal interactions; nutrient cycling; deforestation causes, consequences and alternatives; social and community forestry; and restoration of degraded tropical forest ecosystems.

Students may pursue their specific areas of interest relating to agroforestry through the "Project in Tropical Ecology" (F&ES 577a,b), which allows in-depth study on an individual or small-group basis. At present, two students from India and Bangladesh are pursuing agroforestry-related research through this project course.

The "Special Student" status allows individuals desiring short-term study to enroll for one semester only and for one course only after meeting the regular admission requirements.

Institutional Setting and Facilities:

The School of Forestry and Environmental Studies established the Tropical Resources Institute (TRI) in 1983 to provide a focus for the study of tropical resource issues from an applied management and policy perspective. TRI provides a broad-based program, including courses in tropical forest ecology, tropical economic botany, tropical soils, rural development sociology, and tropical natural history. In addition, students can take advantage of offerings in other programs at Yale University, such as the Departments of Anthropology, Economics, Political Science, Sociology, the Center for International and Area Studies, and the School of Organization and Management.

In addition, TRI sponsors seminars and symposia, field trips to tropical areas, and overseas summer internships for masters students. During the summer of 1990, ten students worked on tropical resource problems in Costa Rica, Brazil, Honduras, Puerto Rico, Columbia and Indonesia. Current faculty and doctoral research covers such topics as the management of native fruit trees in agroforestry systems, the influence of trees on soil fertility and nutrient cycling, and the social ecology of native groups living in biosphere reserves. TRI has signed about forty Memoranda of Understanding (MOUs) with natural resource institutions in the U.S. and overseas to facilitate cooperation in training, internships, student and faculty exchanges, and collaborative research.

Yale University established the School of Forestry in 1900, and it is the oldest forestry school in the western hemisphere. The Forestry Library has one of the oldest and largest collections of forestry, natural resources, and related publications in the world, with holdings of over 130,000 volumes and over 900 serial publications. Greeley Memorial Laboratory has facilities for work in soils, plant ecology, wildlife ecology, and forest pathology.

Costs: Tuition for Master's-level study for the 1989/90 academic year cost \$12,000, and for doctoral study \$14,280. Living expenses for the year cost \$10,000.

Foreign Students:

In 1989/90, there were 17 Master's students and 10 doctoral students from foreign countries. The UNFAO, USAID, and the Ford Foundation were the funding sources for these students.

The School requires a TOEFL score of 650 or better for admission.

II. INSTITUTIONS OVERSEAS

1. Institution: Asian Rural Life Development Foundation (ARLDF)
P.O. Box 94
8000 Davao City
Philippines

Contact: Harold Watson
Director

Training Program:

ARLDF is not a formal education or training center. The foundation trains hundreds of people per year, mostly small farmers and their families. Three courses are offered, two of them specifically agroforestry.

SALT I or Training in Sloping Agricultural Land Technology is designed to create an awareness of environmental degradation in the uplands of the tropics. Nearly 3/4 of the course is held in the field, the remaining portion is in the classroom. Participants work closely with staff and local farmers and actually design and implement a small project in the village area. Over the 2-3 day course, participants learn about alley-cropping and contour hedgerow-based farming systems that will help poor rural farm families.

SALT II, the Simple Agro-Livestock Technology course is similar to SALT I, except that it incorporates a livestock component to the systems. Participants get first-hand experience with animal/forage systems.

SALT III is Sustainable Agroforestry Land Technology. The focus of this course is on small reforestation projects (1 hectare) that are practical and can help small farmers.

Institutional Setting and Facilities:

The training center is located on a 19-hectare farm in southern Mindanao, Philippines. The climate is tropical and the terrain is mountainous. The center has live-in facilities but no access to telephone, television etc. Mail and communication is through the office in Davao, about 2 hours from the training center.

Costs: Training costs are \$13.00 per day. This includes food and lodging. Courses are 2-3 days in length. Although funding is available through ARLDF, these funds are limited and extremely competitive. Most participants attend with assistance from Ford Foundation, Winrock, FAO etc.

Students: There are no admission requirements. Trainees come from all parts of the Philippines. In the past year, there have been over 300 foreign participants from over 30 countries, mostly Asia/Southeast Asia. Courses are conducted in English and three Filipino dialects.

2. **Institution:** Escuela Agricola Panamericana (Zamorano)
P.O. Box 93 EAP
Tegucigalpa, Honduras

Contact: Dr. Valerie Wright de Malo
Coordinator of Environmental Programs

Program: EAP offers two degrees: the Agronomo degree, which is a 3 years program of intensive training in agriculture; and the Ing. Agronomo degree which is a 4 year program and includes a research component. The current degree program consists of lectures, laboratories and field practicals in agriculture, agroforestry and forestry. A new curriculum in Natural Resource Management, with an emphasis on agriculture/forestry relationships is being developed for the Ing. Agronomo degree. The first course will be offered in January 1992.

Training Course:

The Escuela offers occasional short courses in agroforestry, forestry, and related topics through its Kellogg Center for Rural Development and sponsored by various agencies. The Center was established in 1988, and has offered seven short courses since that time.

Institutional Setting and Facilities:

EAP, known as Zamorano, the traditional name of the farm where it is situated, is a private international college, established in 1941. It is located in the Yeguaré River valley in central Honduras. The campus and school properties consist of about 7000 acres of agricultural land, pine forest and mountain cloud forests. It has an infrastructure and physical plant equal to most U.S. colleges of similar size. The college houses faculty and up to 650 students on the campus in an international community. Students come from 22 different countries in Latin America and the Caribbean.

Costs: Total cost of the degree program (Ing.) is approximately \$13,000 which includes housing, insurance, supplies, etc. Students receive scholarships from many sources, especially USAID, GTZ, COSUDE and other government and private agencies.

Students: EAP attracts students from 22 countries in Latin America and the Caribbean. Classes are conducted in Spanish, but regular students are required to take English classes.

3. Institution: Centro Agronomico de Investigacion y Ensenanza (CATIE)
7170 Turrialba
COSTA RICA

Contact: Ramon Lastra, Ph.D.
Coordinador Programa de Maestria
Tel: (506)561016; Fax: 561533; Telex: 8005

Program: CATIE offers M.Sc. programs in Production Systems, Silviculture, and Agroforestry. Courses which are offered in support of these degree programs and which focus specifically on agroforestry include:

- 1) "Soils in Agroforestry Systems", which covers the following aspects of agroforestry systems: water regimes, organic matter cycling, and nutrient cycles for nitrogen, phosphorus, potassium, calcium, and magnesium;
- 2) "Development of Agroforestry Systems", which considers the following: agroforestry system components and their interactions; design and evaluation methodology; and socio-cultural aspects;
- 3) "Measuring Agroforestry Systems", which discusses research methodologies for agroforestry systems, including: demarcation of plots; interpretation and application of results; measurement of tree, forage, livestock, and crop components; floristic composition, and other areas;
- 4) "Biology of Agroforestry Systems", which covers: the classification of agroforestry systems; microbiology of soils, including rhizobia and micorrizae; nutrient cycling; vegetative propagation; microclimate and hydrology; nutritional aspects of trees; animal nutrition; and annual crops.

Training Course:

CATIE offers a three-week course entitled "Planification de Estrategias Para la Extension Forestal", or "Planning Forestry Extension Strategies". The objectives of the course are to enable participants to plan and conduct communication strategies to support forestry extension, and to disseminate technical and socioeconomic information concerning the cultivation of multipurpose trees (MPTs) by small and medium rural producers. At the end of the course, participants are able to:

- 1) understand and apply the concepts and principles of silviculture with MPTs;

- 2) master the concepts and practices of developing communication strategies to support forestry extension involving MPTs;
- 3) design and produce educational materials to support forestry extension;
- 4) plan, implement, and evaluate extension methodologies and practices;
- 5) develop social profiles in rural communities;
- 6) organize rural producers to participate in community forest nurseries.

The first week of the course includes a discussion of natural resources, forests, and rural populations and consideration of silvicultural principles for MPTs. The second and third weeks of the course treat diagnosis, the planning of communication strategies, extension objectives and methodologies, monitoring and evaluation, and the design and production of supporting materials. The course consists of approximately 30% theoretical training and 70% practical training, including workshops, laboratory work, research and field trips.

This course is offered as part of The Project for the Cultivation of Multipurpose Trees (in Madelena), whose objective is to enhance the incomes and welfare of rural families and to alleviate the deterioration of the environment by promoting a significant increase in the cultivation of MPTs in farms and the commercialization of forest products. In particular, it seeks to address the lack of trained forest extension agents. The course is offered at CATIE headquarters in Turrialba, with visits to rural communities and demonstration farms.

The course was offered in 1990, and will be offered again in March 1991 by the Instituto Tecnológico de Costa Rica (ITCR) to Costa Rican technicians and extension agents. In addition, it is hoped that the course will be offered on an annual basis in various Central American countries under the responsibility of forestry faculties or institutions in these countries, with the assistance of CATIE.

Institutional Setting and Facilities:

CATIE is an educational and scientific organization which seeks to promote research, education, training, and technical cooperation in agricultural and livestock production and the use of renewable natural resources, with a focus on Central America and the Antilles. CATIE's research and educational facilities are located on 950 hectares in Turrialba and on a 150-hectare experimental farm in the Atlantic region of Costa Rica.

Costs: Tuition costs for the M.Sc. program are approximately \$5,130 for the first year of study and \$5,690 for the second year. This does not include living expenses, which are estimated at about \$500 per month.

The cost of the three-week course is approximately \$1,300.00 (1990), including materials, local transportation, health insurance, and other expenses. Financial assistance may be available from CATIE and ITCR for participants who cannot obtain sufficient funding from their sponsoring institutions.

Students: Participants in the short course must be sponsored by a public or private institution or organization whose activities are related to forestry development in Central America, Panama, and/or the Dominican Republic. They must hold a university degree in Forest Science, Agronomy, or a related discipline, and be working in forestry or agroforestry-related education, training, extension or communication activities.

4. Institution: International Agricultural Centre
P.O. Box 88
6700 AB Wageningen
The Netherlands

Contact: Ir. P. Laban
Course Director
Tel: (31-8370)90111; Fax: 18552; Tlx: 45888 INTAS NL

Training Course:

The International Agriculture Centre (IAC) will be offering its fourth "International Course on the Design of Community Forestry" from September 9 to December 14, 1991. This three-month course is designed for programme officers engaged in policy formulation or in the design, management and evaluation of rural development programmes to strengthen community forestry activities. The course program attempts to place the concept of community forestry within the broader context of rural development, and is organized into a series of information, design, and field work blocks. The curriculum can be summarized as follows:

The Introduction includes presentations by participants on community forestry development in their respective countries, discussions of information needs and community forestry systems, and the outline of papers to be completed.

The second block covers key issues concerning the analysis of rural environments, including: agroforestry; the economic and social dimensions of the use and tenure of land and trees; rural energy and the scarcity of woodfuels; community forestry and the parties involved; farm-household system analysis; village organization; and extension and supporting policies.

The field work portion of the course focuses on the collection and use of relevant data, including: the situational analysis of parties involved in the management and use of trees and land in a rural area of the Netherlands; the methodology of rapid analysis of rural environments; and an introduction to Objective Oriented Project Planning (OOPP).

A fourth block considers the analysis of problems and community forestry program objectives, risk and input assessments, institutional sustainability, and reporting techniques. Issues such as land evaluation, carrying capacity, and the planning of soil and water conservation and forestry activities at the community level are discussed.

A fifth block discusses financial and economic considerations and strategies and policy instruments with regard to community forestry programmes, including the mobilization of resources and management skills.

Another component of the course is the design of community forestry programmes in Objective Oriented Project Planning workshops and the presentation of these programs.

Throughout the course, participants work in regional groups to prepare a proposal for a community forestry programme for a specific area in one of the countries in their region. Accordingly, preference for admission to the course is given to teams of two to three participants per country with varying educational and professional backgrounds.

Institutional Setting and Facilities:

Wageningen is a town of approximately 32,500 inhabitants in the center of The Netherlands, and it is the seat of the Agricultural University and a large number of other institutes specialized in various branches of agriculture. IAC is in the process of organizing an in-region course similar to the one described here through established institutes in Asia, Africa and Latin America.

Costs:

The cost for this course will be approximately \$9,000 (3,700 Dutch Guilders) and covers tuition fees, full board and lodging, medical insurance and allowances. Scholarships may be available from the Dutch Government through The Netherlands Fellowship Programme (NFP). Previous students have generally been supported by their governments, employers, non-governmental organizations, or externally financed projects, and have also been funded by UNFAO, the German and Swedish Governments, the World Bank, and the European Development Fund (the European Communities).

Students:

The course accepts twenty participants and requires a B.S. degree, preferably an M.S. degree, in forestry, agriculture, or a social science such as rural planning. At least five years of professional experience is also required. The course accepts candidates from both non-governmental and governmental organizations, and strongly encourages application by women. Participants must have a good command of English, as there are no English training facilities available.

5. Institution: The International Council for Research in Agroforestry
(ICRAF)
P.O. Box 30677
Nairobi, KENYA

Contact: J. Beniast
Training Officer
Tel: (254-2)521450; Fax: 521001; Telex: 22048

Program: ICRAF coordinates a post-graduate fellowship programme for researchers from institutions linked to the Agroforestry Research Network for Africa (AFRENA) in order to upgrade their professional qualifications. ICRAF has established four AFRENAs in Southern Africa, Eastern and Central Africa, the Humid Lowlands of West Africa, and the Semi-arid Lowlands of West Africa.

The Canadian Agency for International Development (CIDA) is currently funding a five-year programme for AFRENA Southern Africa to train a three-person multidisciplinary team from Malawi, Tanzania, and Zambia. The program involves involves initial coursework abroad and subsequent thesis research "in-zone" at AFRENA research sites. Nine fellows are currently studying in the United States and Canada under this programme. ICRAF also has plans for Zimbabwe to join AFRENA Southern Africa.

In addition, in 1989 ICRAF initiated a project to develop curricula for agroforestry education in African universities and technical colleges, at the M.Sc. level. The following developed four model curricula were developed:

- 1) M.Sc. Agroforestry
- 2) M.Sc. Agronomy with Option in Agroforestry
- 3) M.Sc. Animal Science with Option in Agroforestry
- 4) M.Sc. Forestry with Option in Agroforestry

Moi University in Kenya and the University of Science and Technology in Kumasi, Ghana (see separate entry in this directory) began M.Sc. programmes in the 1990/91 academic year, and Sokoine Agricultural University in Tanzania intends to do so in the near future. ICRAF is also working to develop an African Network on Agroforestry Education (ANAFE).

ICRAF has a Research Fellowships and Visiting Scientists program which allows professional staff and senior scientists from developing country national institutions to undertake agroforestry research alongside ICRAF staff. This nondegree program may last as long as 24 months. ICRAF

offers six-month internships to allow professionals from national institutions in developing countries to study or work on an agroforestry project under the supervision of ICRAF's scientific staff.

Training Course:

ICRAF offers an annual training course entitled "Agroforestry Research for Development", which has been offered five times since 1985. The aim of the course is to strengthen the ability of research scientists from developing countries to initiate and implement agroforestry research which will generate technologies suited to local conditions and farmers.

The course is organized into five modules. Module I presents an introduction to agroforestry systems concepts, research approaches, and the role of multipurpose trees and shrubs. Module II considers specific agroforestry technologies such as hedgerow intercropping; rotational systems; crops under tree cover; pasture and animals under tree cover; and linear, sequential, and multistrata agroforestry technologies. Module III discusses the Diagnostic and Design (D&D) methodology developed by ICRAF to undertake interdisciplinary identification of land-use problems and potentials and to establish research and development priorities. Module IV provides an introduction to agroforestry research in the areas of technology design and development, multipurpose trees and shrubs, on-farm research, and the evaluation of farmers' systems. Module V covers the evaluation of agroforestry systems.

The course is held every year at ICRAF Headquarters in Nairobi for a worldwide audience. The next course will be held from October 14 to November 1, 1991. The application deadline is June 15, 1991.

The course is also offered in-country to collaborative national institutions linked to AFRENA. It is adapted to suit the needs of training programs in various agro-ecological zones of Africa, Asia and Latin America, and has been offered in English, French and Spanish to date.

In addition, ICRAF sponsors workshops, seminars and conferences to provide opportunities for interaction among different parties involved in agroforestry research and usually to assess problems, develop guidelines, or formulate joint plans.

Institutional Setting and Facilities:

ICRAF is fully equipped as a training facility and has a conference hall, audio-visual support, a library, and a field station in Machakos.

- Costs:** The cost of the "Agroforestry Research for Development" course ranges between \$3,500 and \$5,000, depending on travel costs and the specific course program.
- Students:** The training course is open to forty participants from developing countries. Previous students have come from national forestry and agriculture institutions in over 51 countries in Africa, Asia, the Pacific, and Latin America. About ten percent of the students have been women. Participants must have a B.Sc. in any discipline related to agroforestry. Previous students have found financing from USAID/Dutch bilateral aid (the DSO Programme) and other sources.

6. Institution: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
P.O. Patancheru-502 324
Andhra Pradesh, INDIA

Contact: D.L. Oswalt
Training Programs

Training Program:

ICRISAT offers a six-month training program in "Resource Management" which is held from May through November each year. It is designed to develop: 1) research skills related to watershed development for improved land and water management; and 2) proficiency in production factors and research techniques related to agronomic practices, cropping systems, agroclimatology, soil fertility and physics; and plant protection to increase and stabilize food production in the rainfed semiarid tropics. The program is designed in collaboration with cooperating agencies in the semi-arid tropics to meet specific needs of scientists, managers, agriculturalists, administrators, and other participants.

ICRISAT also offers programs for Postdoctoral and Research Fellows, and Research Scholars to allow scientists with varying levels of experience and education the opportunity to work with senior research scientists on a specific problem or research activities in the semiarid tropics.

Institutional Setting and Facilities:

ICRISAT has offered training programs since 1974 for agriculturalists from national programs in the semiarid tropics. Its facilities include fully equipped laboratories and study facilities and a reference library.

Costs:

The cost of this training course is approximately \$850 per month, not including airfare. Candidates must be nominated and recommended by an agency or institution working in the semiarid tropics, and this agency normally provides or secures funding for them. ICRISAT has a limited number of partial or complete scholarships to which agencies may apply on behalf of their candidates. The application deadline for the Resource Management course is February 15.

Students:

Minimum academic qualifications vary widely. Candidates must be engaged in work directly related to increasing and stabilizing food production in the semiarid tropics.

English is the primary language of instruction. An intensive two-month English course for non-English-speaking candidates may be organized at ICRISAT from mid-March to mid-May prior to the course.

7. **Institution:** International Institute for Aerospace Survey and Earth Sciences (ITC)
Boulevard 1945, No. 350
P.O. Box 6
7500 AA Enschede
THE NETHERLANDS
- Contact:** Student Registration Officer
Tel: (31-053)320-330; Fax: (053)304-596; Tlx: 44525 ITC NL
- Program:** The International Institute for Aerospace Survey and Earth Sciences (ITC) offers an annual eight-month diploma course entitled "Forestry for Rural Development" which begins the second week of October. The course aims to engender a greater understanding of the role of trees in production systems and to facilitate a more productive use of woody plants in meeting local community needs and pursuing sustainable rural development. The course is organized as follows:
- 1) **Concepts and Approaches:** students describe and analyze their own work situations with respect to trees and forests, the rural population, and their professional colleagues, in order to gain insight into social, economic and cultural factors governing the use and management of trees and forests in rural areas;
 - 2) **Surveys for Rural Forestry:** students learn to select appropriate survey strategies and to implement surveys to identify relevant social, economic, institutional, physical and biological factors in rural forestry. They are encouraged to use remote sensing materials. Issues of a mixed technical-social nature, such as agroforestry, rural energy, and watershed management, are considered;
 - 3) **Fieldwork:** using a multi-disciplinary group approach, students implement a field survey;
 - 4) **Applications for Participants:** additional information is provided on intervention techniques and participatory approaches, and students apply their knowledge and skills to their own working situations.
- Students will gain a greater understanding of: the qualitative and quantitative role of trees in land use systems; the constraints and opportunities for improving the management of woody biomass resources; the role of local communities and their priorities; and ways to tap and systematize indigenous knowledge and practices to improve productivity and access to community resources on a

sustainable basis. Fieldwork is conducted in a (sub)tropical country for a period of four weeks. Upon completion of the course a post-graduate diploma in forestry for rural development is awarded.

Institutional Setting and Facilities:

ITC has been well known for its training activities, particularly in the area of aerial photography, photogrammetry, and photo-interpretation. Currently, it is changing its curricula to reflect a greater emphasis on the collection and processing of geo-based data and the management of geo-information. Full attention is now given to all aspects of aerospace surveying, remote sensing, and the application of manual and digital techniques.

The diploma program described above is offered by the forestry group of the Department of Land Resource Surveys and Rural Development of ITC, in close cooperation with the Educational Training Consultants Foundation (ETC). Teaching staff are also drawn from other departments and other Dutch institutes, such as the International Agricultural Center and the Agricultural University Wageningen.

Costs:

The estimated costs for 1991 are Dfl. 32,000, or about \$18,800, including living expenses and travel to the overseas fieldwork site. Although ITC has no funds of its own, a number of fellowships are available each year under the Netherlands Fellowship Programme. Previous students have also been financed by their national organizations.

Applications for admission should be submitted six months prior to the start of the course, and normally payment must be received three to four months before the beginning of the course.

Students:

The course is designed for foresters engaged in community forestry programs, for agricultural extension officers interested in developing integrated tree components, and other officers working in a related field in rural development. The level of seniority of participants depends on the level of development of the extension service in their country. The course is also open to trainers and teachers in a relevant field. Applicants must hold a B.Sc. or equivalent in forestry, agriculture, or a relevant discipline. Good stereoscopic and color vision is desired.

The course is offered in English, and there are no language training facilities available at ITC. Therefore, participants must have English language proficiency.

8. Institution: International Institute of Rural Reconstruction (IIRR)
Silang, Cavite
PHILIPPINES 4118

Contact: Scott Killough
Deputy Director
Appropriate Technology Unit
Tel: (63-969)9451; Fax: (63-2)522-2494; Tlx: 27886 IIRR PH

Training Course:

IIRR offers a four-week short course entitled "International Training in Regenerative Agriculture", which will be held from November 16 to December 13, 1991. This course is primarily aimed at enhancing participants' knowledge and skills in the management of agricultural projects and particularly in regenerative agricultural technologies which rely heavily on internal farm resources and the diversification of farm enterprises. Agroforestry is a major subject area within the course curriculum, which is organized into the four main "content areas" listed below.

- 1) Low-External Input Agricultural Technologies, which discusses genetic resource conservation, aquaculture, agroforestry, livestock production systems, bio-intensive gardening, lowland and upland farming systems, and food lot modules;
- 2) Technology Dissemination/Adaptation, which focuses on "people-centered strategies" to utilize the indigenous technical knowledge base of farmers, emphasizing a participatory approach to technology development;
- 3) Project Management for Sustainable Agriculture Development, which considers the planning, implementation and evaluation of agricultural projects with respect to the integration of different low-input technologies for sustainable development;
- 4) Individual Study, in which each participant develops a project idea based on knowledge gained during the course.

Other topics covered during the course are: Agricultural and Natural Resource Management; Agro-ecosystem Analysis and Other Rapid Appraisal Methods; Agroforestry-based Technologies for Improved Upland Farm Management; Rice-based Lowland Ecosystems; Coastal Area Ecology; Alternative Pest Management; Livestock Production Systems; Bio-fertilizer and Cover Cropping; Tuber Crop Production and Processing; Post-Harvest Technologies; Conservation and Wildlife Issues; and Gender Issues in Aquaculture and Environment.

The training course involves IIRR field staff-practitioners as well as farmer-scholars, and also draws on the staff of universities, NGOs, and government organizations. The course incorporates field visits, a village stay, a practicum, video/slide discussions and workshops.

Institutional Setting and Facilities:

IIRR has undertaken short courses in Regenerative Agriculture (RA) in collaboration with its national affiliates, alumni, and other NGOs in various countries including Mexico, Ghana, Guatemala, India, Kenya, Thailand, Papua New Guinea, Bangladesh, and the Philippines. It has also developed training materials, such as an Agroforestry Technology Information kit on agroforestry for upland farmers on marginal lands (jointly produced by the Ford Foundation and the Department of Environment and Natural Resources of the Philippines). IIRR works with support and in collaboration with agencies such as the Rockefeller Brothers Fund, UNICEF, UNFAO, World Neighbors, the Ford Foundation, CIDA and others.

Costs:

The cost of this course is \$3,000, including \$2,000 for tuition and fees and \$1,000 for room and board. An additional allowance of \$300 is suggested for incidental or personal expenses.

Students:

The course is open to project managers, extension leaders, trainers, and development workers. Women are especially invited to attend the course.

9. Institution: International Institute of Tropical Agriculture (IITA)
PMB 5320, Oyo Road
Ibadan, NIGERIA

or: c/o L.W. Lambourne & Co.
Carolyn Hse, 26 Dingwall Road
Croydon CR9 3EE
UNITED KINGDOM

Contact: Dr. Jim Gulley
Group Training Coordinator

or: Dr. Kwesi Atta-Krah
Coordinator
Alley Farming Network for Africa (AFNETA)
IITA
Tel: (234-22)400300; Tlx: TDS IBA NG 20311 or TROPIC NG
31417

Program: IITA offers an Associated Agroforestry Research program and other Individual training programs for B.Sc., M.Sc., or Ph.D. students registered with a recognized university. Such students may conduct their graduate research programs under the supervision of a scientist at IITA provided that the subject matter is of relevance to IITA's mandate. Under this arrangement the degree is awarded by the university at which the student is enrolled.

Training Course:

IITA's Alley Farming Network for Africa (AFNETA), in collaboration with ILCA and ICRAF, offers a two-week training course in alley farming in the humid and sub-humid regions of Africa. The course focuses on research methodologies for alley farming appropriate to sub-Saharan Africa. It is designed to train national agricultural research system (NARS) scientists in the conduct of on-station and on-farm alley farming research. Particular emphasis is given to on-farm research (OFR) principles and linkages between research and extension. Attention is also given to analytical tools for socio-economic assessments. The principal subjects covered by the course are:

- 1) Tropical farming systems and their constraints;
- 2) Methods of screening and selecting multipurpose trees;
- 3) Interaction of trees and crops in alley farming systems;
- 4) Soil management for sustainable agriculture;
- 5) Integration of livestock into agroforestry systems;
- 6) Socio-economic and cultural factors;
- 7) Principles of on-farm experimentation;
- 8) Methodologies for experimental and developmental OFR;
- 9) Experimental design and statistical tools in OFR;
- 10) Research planning and reports.

The course will be offered April 8-19, 1991. Twenty participants will be selected from NARS institutions in tropical Africa. Candidates must be actively involved in field research in agronomy, agroforestry, animal science, or socio-economics. Actual or potential involvement in a multi-disciplinary OFR project is advantageous. A minimum of an M.Sc. or the equivalent in agriculture or forestry, as well as at least two years of experience in research, extension or training, are required.

In addition, AFNETA has begun to conduct regional and in-country training courses in collaboration with the staff of other international agricultural research centers and the NARS institutions in Africa. AFNETA offered its first in-country agroforestry training course in cooperation with the Nigeria National Chapter of AFNETA and the University of Ibadan in July 1990. The course considered: tree/crop interactions; soil management principles; management of MPT's; weed control in agroforestry systems; livestock integration in agroforestry; socio-economic and cultural factors; research-extension-farmer linkages; and field experimentation techniques. The core resource persons were Nigerian scientists who had been trained during the "Train the Trainer" workshop held by AFNETA at IITA in March 1990. Participants came from agricultural development projects, research institutions, universities, and private enterprises.

AFNETA and the Projet de Recherche Agronomique Applique et Vulgarisation in Zaire will organize a training course on principles, practices, and methodologies in agroforestry research at at Mvuazi, Zaire from February 18-28, 1991. The course is intended for young scientists and development workers with Ingenieur Agronome qualifications or its equivalent in agriculture, forestry, social science or animal science. The course will be conducted in French.

Institutional Setting and Facilities:

IITA is an international centre for research in tropical agriculture, with a particular focus on sub-Saharan Africa, and AFNETA is located within its Resource Management Research Program.

Costs:

The course fees for "Alley Farming for Tropical Africa" are \$525, including \$225 for training, insurance, medical care, and course-related travel, and \$300 for room, board and a stipend. The cost of the other training courses varies from \$1,200 to \$1,500. Scholarship possibilities are available only to African scientists working in institutions carrying out AFNETA collaborative trials. Financing sources for

previous students have included IFAD, CIDA, UNFAO, USAID, GTZ, DANIDA, IDRC, and others.

Students:

Priority is usually given to African scientists and technicians as well as development workers, although other participants may comprise up to ten percent of the class. Particular efforts will be made to attract women into the programme. The courses are taught in English and French. There are no language training facilities.

10. Institution: International Tree Crops Institute (Head Office)
P.O. Box 283
Caulfield South 3162
Victoria, AUSTRALIA

Contact: Geoff Wilson
Executive Director
International Board
Tel: (61-3)571-6209; Fax: 571-8502

or: Miles Merwin
Vice President, International Board
ITCI
P.O. Box 4460
Davis, CA 95617-4460
Tel: 916/753-4535; Fax: 916/756-0900

Training Course:

The International Tree Crops Institute (ITCI) will offer a short training course entitled "Australian Dry-Country Agroforestry Train-the-Trainers Course", which is scheduled to take place from October 5-25, 1991. The course is a travelling course, visiting farms and research projects in Victoria, South Australia and Western Australia engaged in both established and innovative agroforestry practices. Special emphasis will be placed on direct seeding techniques for low cost establishment of trees and shrubs; tree seed farming with Australian native species; agroforestry with carobs and other arid country tree species; agroforestry with salt-tolerant and tree-crop eucalypts and casuarinas; fodder shrubs and acacia fodder trees; and honey farming. The course is scheduled to run after the 1991 national conference entitled "The Role of Trees in Sustainable Agriculture", which will be held in Albury/Wodonga, Australia from September 30 to October 3, 1991.

ITCI also offers an annual agroforestry short course entitled "Train the Trainers" in conjunction with the New Zealand Forest Research Institute (NZFRI). Offered for the first time in January 1991 in New Zealand, it will be held in 1992 from January 20 to February 1. It aims to illustrate the establishment, management, and economic aspects of agroforestry systems in a temperate climate, and provides a detailed examination of innovative agroforestry practices involving pines or eucalypts with agricultural crops and livestock husbandry. The course includes visits to NZFRI research and demonstration projects and commercial farms representing conditions ranging from high-rainfall, good soils to low-rainfall/poor soils. It will look at

shelterbelts; specialty timbers; integrated grazing schemes with cattle; sheep and deer; and high-country agroforestry for anti-snow shelterbelts. This course is expected to be of interest primarily to North Americans and Europeans.

Institutional Setting and Facilities:

ITCI is a non-profit, non-governmental organization dedicated to promoting sound agroforestry and other farm tree systems, especially with multi-purpose trees and arid-zone species for the control of land degradation. ITCI has offices in the United States, Australia, India, China, and New Zealand. Its members include many international agroforestry professionals working as scientists, educationalists, extension officers, journalists, policy advisors, and farmers. ITCI can make available project teams of agroforestry experts drawn from its international membership to consultants, governments, and private companies for project assessment and planning.

The New Zealand Forest Research Institute (NZFRI) specializes in agroforestry with livestock. New Zealand is a world center for agroforestry under temperate conditions, particularly with cattle, sheep and deer, and tree species such as pines and eucalypts.

Costs:

The cost of the course in Australia is not yet available. The cost of the New Zealand course will be approximately \$1,350 to \$1,550, per person, depending on enrollment. This includes transportation and accommodations within New Zealand. Meals will cost approximately \$300 extra.

Students:

The courses are designed for extension officers in agriculture and forestry, farmers, and lecturers in the fields of agroforestry and farm trees.

11. Institution: Kasetsart University
Regional Community Forestry Training Center (RECOFTC)
Faculty of Forestry
Bangkok 10900
THAILAND

Contact: Dr. Somsak Sukwong
Director
Tel: (66-2)5790108; Fax: 5798781; Telex: 21957 RECOFTC TH

Training Course:

The Regional Community Forestry Training Center (RECOFTC) will offer its fourth Certificate Course in Community Forestry from June 10 to December 6, 1991. The six-month course seeks to introduce participants to the complex interactions involved in managing, promoting and overseeing community forestry programs and projects. Students will have direct contact with villages and produce a community forestry action plan for one village community. They will also write a paper on the development of community forestry programmes for a specific activity in their home countries.

The course is organized into the following six blocks:

- 1) Introduction and Environmental Principles: includes basic principles of community forestry, forest inventory and assessment procedures, and ecosystem functions;
- 2) Human and Economic Behavior: includes social, economic and political factors, policy and legislation, rural sociology, and communication techniques;
- 3) Planning, Management and Applications: includes principles of management and administration, decision-making and systems analysis, project and program planning, managerial motivation and work group dynamics, and principles of cooperatives;
- 4) Extension: includes public speaking techniques, forestry extension campaigns, mass media methods and public relations, conference administration, and monitoring and evaluation;
- 5) People and Natural Resources: includes agroforestry, farming systems, energy production, urban forestry, small scale forestry products industry, soil and water conservation and watershed management, silvo-pastoral management, fire management, arid and semi-arid zone management, coastal resources, fisheries, and parks;

6) Special Study: participants explore specific topics of interest.

Institutional Setting and Facilities:

The course is taught on the Bangkhen Campus of Kasetsart University in Bangkok and at the field campus at Huay Tak about 700 km north of Bangkok.

Costs:

The cost of the course is approximately \$9,200, which includes a living allowance, in-country transportation, supplies and documents, health insurance, and university fees, but does not include transportation to and from the home country.

Students:

The 1989/90 course had eighteen participants from twelve countries, supported by various donors. Three or four scholarships are available for students from ADB DMC countries. Applicants should hold a degree in a relevant area, have direct responsibility in a community forestry program or be scheduled to join such a program.

12. Institution: Moi University
 Faculty of Forest Resources and Wildlife Management
 P.O. Box 3900
 Eldoret, Kenya

Contact: Mr. Anwar-Ul-Haq
 Dean

Program: Degrees available from Moi are a B.Sc. and a M.Phil. in Forestry. For the M.Phil. degree, a specialization in agroforestry is being developed. The requirements for this degree are the following classes:

FOR 840R Concepts and Practices of Agroforestry. Course reviews definition and classification of agroforestry, land-use systems and environmental factors related to agroforestry, agroforestry management techniques, and characteristics of trees and shrubs.

FOR 841R Land Evaluation and Classification. Land-use, soil, climate and vegetation identification and classification, prioritization of problems solvable with agroforestry, and policy issues.

FOR 842R Socio-economic Aspects of Agroforestry. Social and economic concepts, family and gender issues, land and tree tenure, basic micro and macro economic theory pertaining to agroforestry, economic considerations for multi-output/long term enterprises.

FOR 843R Agroforestry Diagnosis and Design. Selection procedures for choosing diagnostic field sites; prioritization of potential interventions, technology recommendations, research and extension activities; design initiation.

FOR 844R Agroforestry Research Techniques. Research processes and objectives, experimentation plots, units of measurement, farm trials, analysis of data.

FOR 845R Multipurpose Trees and Shrubs (MPTS) in Agroforestry. MPT's in current farming systems; characteristics, evaluation and selection, establishment and management of MPT's; interface between MPT's, crops and animals.

There are also several elective courses, some of which include Extension Methodology, Rural Sociology and Community Development, Range, Wildlife and Fisheries Management, and Crop Production and Farming Systems. Students are required

to take 5 elective courses. They are also expected to take part in field work as well as complete a thesis.

Institutional Setting and Facilities:

Moi University has two field stations. Marigat is located in an arid and semi-arid setting; the Cenegalo Forest is in a "high potential" area. The university has complete facilities for housing students, including recreation and social activities, and counselling and health services.

Costs:

Total costs for housing, tuition, books and supplies are approximately \$2000/year. The program is designed as a two year program.

Students:

Because of the high number of qualified Kenyans, very few foreign students are admitted to Moi. However, some people have been accepted from Rwanda, Malawi, and Zambia. These students had the support of their governments.

13. Institution: School of Environmental Conservation and Management (SECM)
Department of Forestry
P.O. Box 109
Bogor 16001
INDONESIA

Contact: A.C. Smiet, M.Sc.

Program: SECM offers an annual eight-month post-graduate course entitled "Watershed Management" under the aegis of the Forestry Training Center of the Central Forestry Education and Training agency of the Ministry of Forestry. Offered each year since 1986, the 1991 course will run from July 1st to the end of February 1992.

This course was designed to offer in-service training to personnel of the Ministry of Forestry engaged in watershed management to prepare them to function successfully as part of interdisciplinary teams in this field. However, participants from other countries may also be admitted. The course is organized into three sections as follows:

Module 1: Concepts, methods, techniques and major issues in watershed management are considered, such as: project planning; survey design and management; data requirements and presentation; network planning; mapping; census operations; and aerial photo and satellite image interpretation. A brief introduction to such topics as socioeconomic considerations, soil and water conservation, forestry and agricultural land use, and environmental issues, is also provided.

Module 2: Specific contributing disciplines to watershed management are considered, such as: forest land use planning for watersheds; natural and manmade forests; reforestation and rehabilitation; agroforestry; vegetation and animal ecology; ecological relations between watersheds and surrounding areas; village ecology; social institutions; economic activities in agriculture and animal husbandry; farm management; energy; geological aspects of watersheds; soil science, erosion, and conservation aspects of watersheds; meteorology, rainfall, and watershed hydrology; and other areas.

Module 3: A final project is planned, preliminary studies are conducted (including data collection and photo interpretation), the project is executed, and results are analyzed and developed into a written report.

A diploma in watershed management is awarded upon successful completion of the course.

Institutional Setting and Facilities:

This course is jointly executed by the International Institute for Aerospace Survey and Earth Sciences (ITC) in the Netherlands (leading partner), the State Research Institute for Nature Management (RIN) in the Netherlands, the College for Forestry and Land and Water Management (BCS) in the Netherlands, and the Central Forestry Education and Training agency of the Ministry of Forestry. The course is directed and largely conducted by a staff of permanent lecturers and instructors.

The course is offered at the Bogor Forestry Training Center campus in Bogor.

Costs:

Costs for the 1991/92 course have not yet been determined. Scholarships may be available from the Government of the Netherlands.

Students:

Students from countries other than Indonesia, including Thailand, the Philippines, and Malaysia, have attended the course in previous years. The course is conducted in English, and language training is offered during the six to eight weeks prior to the start of the course.

14. Institution: Silsoe College
Cranfield Institute of Technology
Silsoe
Bedford MK45 4DT
UNITED KINGDOM

Contact: Miss J.A. Hookway
Short Courses Executive

or: Student Recruitment Executive
Tel: (44-0525)60428; Fax: 61527; Telex: 265871 (MONREF G)
EUM 300

Training Course:

Silsoe College will offer an annual three-month short course, or "post-experience programme", entitled "Agroforestry Systems" beginning in June 1991. The primary objective of this programme is to increase the effectiveness of land use professionals in the diagnosis, analysis and design of mixed cropping systems involving woody perennials. A key theme of the course will be the quantitative assessment of "yield advantage", its ecological basis, and its environmental consequences. The course is aimed at all professionals involved in land use planning and policy with an emphasis on development projects.

The course is organized into the following modules:

- 1) Introduction to Agroforestry, including traditional agriculture and forestry practices; the systems approach; agro-ecological zones; socio-economics;
- 2) Animals in Agroforestry, including nutrition and health ecology; pasture, fodder, and browse; tree establishment and protection; ecology of range management;
- 3) Trees in Agroforestry, including multipurpose trees; selection criteria; breeding propagation; tree services, such as windbreaks and soil conservation; "woodiness" ecology;
- 4) The Ecological Environment, including agroecology; remote sensing and aerial photography; information systems; the "Homocline" approach;
- 5) The Socioeconomic Environment, including survey methods; land tenure and social structure; grants and fiscal structures; markets and economics; diagnosis and design methods; basic anthropology;

- 6) & 7) The Ecology of Resource Use and Interference, including plant-environment interactions; plant-plant interactions; interference and partitioning; experimental methods; weeds, pest and disease - an ecological approach;
- 8) Extension Methods, including barriers to adoption; participation; institutions; media; political aspects;
- 9) Temperate Case Studies
- 10) Tropical Case Studies, including humid plantation crops, intercropping, and shade trees; semiarid windbreaks and alley cropping; rain forests; highland tropics; home gardens; modified fallows;
- 11) The Effective Manager, including motivation; accounts; computing; "managing with less";
- 12) Synthesis and Action Plans.

The course is taught by a team of home-based and visiting lecturers with first hand experience in agroforestry research and implementation in Africa, Asia, Europe, America and the Pacific. Field visits to experimental and demonstration trials and personal research will be key elements of the course.

Institutional Setting and Facilities:

Silsoe College is in the Faculty of Agricultural Engineering, Food Production and Rural Land Use of the Cranfield Institute of Technology, which is the largest center of applied research and industrial technology in the British university sector. The College is extensively involved in temperate and tropical "farmer centered" agroforestry research and development, and is a leading center for the study of soils, land use, agricultural engineering, range management, remote sensing and Geographic Information Systems (GIS). It has for many years been addressing the needs of rural communities worldwide, and offers a range of three-month programmes, such as "Range Management", "Management Development Programmes for the Agricultural Sector", "Agricultural Water Management", and "Agribusiness Management in the Developing World". The College has a well stocked library, teaching laboratories, workshop area and computer facilities.

Costs:

The program costs for the Agroforestry Systems course are (in British pounds) 4,850.00 per participant, including tuition, study visits and materials. Residence costs are 450.00 for the twelve week period. A daily allowance of 10.00 is recommended for living and food expenses, and

additional funds will be needed for warm clothing and incidental expenses. A book allowance of 70.00 is also recommended.

Many participants are financed by their governments or private employers, as well as by bilateral and multilateral funding agencies such as the British Council, The European Development Fund of the EEC, the Commonwealth Fund for Technical Cooperation, the World Bank, OPEC agencies, IFAD, UNFAO, UNDP, and the OECD.

Students: Approximately 460 students from over fifty countries are currently enrolled in Silsoe College. Instruction is in English, and the College has a Language Training Centre offering modules designed for the needs of students in particular courses of study.

15. Institution: Universidad de Costa Rica
Agronomy Department
San Pedro de Montes de Oca
San Jose, Costa Rica, A.C.

Contact: Dr. Jose Fonseca Di Stefano G.

Program: The UCR offers a M.Sc. in Agricultural Science and Natural Resources with a concentration in agroforestry. Students are required to take Agroforestry Systems I, II, and III, agroforestry Systems in Soil Conservation and participate in a graduate seminar class on students' research activities and other agroforestry related topics. Students are also required to take one or more of Annual and Perennial Crop Management, Pasture Management, or Silviculture. A thesis must be completed for the final degree requirement.

A brief description of the agroforestry courses is as follows:

Agroforestry Systems I: Biology and Ecology. Emphasizes the ecological interactions between the components of the agroforestry systems. Processes such as competition and nutrient cycling will be studied. Comparisons between natural and artificial ecosystems will be made, including more complex or simple ones.

Agroforestry Systems II: Experimental Designs and Data Management. Incorporates elements of statistics and data management processes for application to agroforestry systems. The identification, measurement, and interpretation of those variables relevant for the quantification and establishment of agroforestry systems will be emphasized.

Agroforestry Systems III: Planning. Using a case study, students will deal with the human aspects involved in the design and establishment of agroforestry systems. Elements of sociology and economics will be used as planning tools to improve the adoption of traditional or new systems.

Agroforestry Systems in Soil Conservation. Study of the different strategies and methods used to manage tropical thesoil resource and the potential of agroforestry systems as a tool for its conservation.

The three technical courses are for students lacking the basic knowledge in any of the three subject areas.

Institutional Setting and Facilities:

UCR offers most of the laboratory, library, computer and classroom facilities expected of a major university. UCR also offers research facilities, with lodging, in various ecological regions in the country ranging from humid to very humid tropical conditions. These facilities include the Experimental Station Fabio Baudrit Moreno, Alajuela, about 45 minutes from San Jose. This is classified as premontane humid tropical. The Experimental Farm Rio Frio, Guapiles is about 2 hours from San Jose and is classified very humid tropical region. There is also an experimental farm in Sant Cruz, Guanacaste, which is about 5 hours from San Jose. This area is humid tropical region with a 6-month dry season.

Costs:

Estimates of total costs are around \$7000 annually. This includes books, tuition, housing, insurance etc. There are no scholarships available from the university at this time.

Students will be considered only if they have a B.Sc. in agriculture, agronomy, or forestry and if they have approval from a professor who will provide guidance for the student. Specific admission requirements are available from Decano Sistema Estudios de Posgrado, Universidad de Costa Rica, Ciudad Universitaria "Rodrigo Facio", 2060 San Pedro de Montes de Oca, Costa Rica.

16. Institution: University College of North Wales
School of Agriculture and Forest Sciences
Thoday Building
Deiniol Road
Bangor, Gwynedd LL57 2UW
UNITED KINGDOM

Contact: Mrs. Ann Louth
Administrative Secretary
Tel: (44-0248)351151; Tlx: 61100 UCNWSL G

Program: The University College of North Wales offers two twelve-month M.Sc. programs which allow the study of agroforestry. Both programs are offered through the School of Agriculture and Forest Sciences.

1) The M.Sc. in Environmental Forestry offers four areas of specialization, including: Environmental Forestry; Production Forestry; Agroforestry; and Arboriculture and Urban Forestry. Students attend at least five postgraduate "modules" of 15-20 hours in accordance with their specialization. Students in the Agroforestry specialization can apply for the "Advanced Agroforestry" module, which is worth 60 hours, and which is organized as an interactive agroforestry tutorial programme for a fixed group of qualified students with tropical interests. It covers environmental, biological, and socioeconomic aspects of tropical agroforestry, as well as research initiatives and techniques.

Coursework is undertaken from October to May, and the dissertation is completed from June to September. Students who leave in June without completing a dissertation receive a Diploma after passing an oral examination.

2) The M.Sc. in Rural Resource Management seeks to present an integrated review of the scientific and socio-economic bases for the rational management and use of rural resources. It is especially suited for students from tropical, arid-zone and temperate environments seeking graduate level or in-service training relevant to land use management. This programme is organized into three components:

Part I: The Environmental System

A holistic view of the principles involved in the measurement, interpretation and management of rural resources is offered. Scientific topics include biometeorology, forest hydrology and watersheds, soil and

land use classes, terrestrial and aquatic ecosystems, and vegetation classification and dynamics. Socioeconomic

topics include agricultural and land use policy, forest and farm economics, extension, questionnaire design and data base construction, budgeting, communication, and audio/visual presentations. Technology-related topics include environmental impact assessments, analytical methods and environmental measurement, remote sensing, agrochemicals, computer appreciation, statistics and data processing, geographic information systems (GIS), graphics and image processing, and library methods.

Part II (Option C): "Arid Zone Management"

This Option considers the following subject areas in terms of their relevance to arid-zone regions: climate; soils and water; rangeland and pastoralism; dryland farming crops and systems; agroforestry; domesticated animals; agricultural and economic development; use of wild plants and animals. Option C also provides instruction in the following techniques: laboratory studies in agricultural science; air surveys and remote sensing; social attitudes assessment; field experimentation; appropriate technology; and project appraisal and preparation. (Option A, "Conservation and Land Management", focuses on temperate environments, and Option B, "Soil Resource Management", has worldwide relevance but does not treat agroforestry directly.)

Part III: Dissertation

At the completion of Parts I and II in June an oral examination is administered. A Diploma may be awarded at this time. Students seeking an M.Sc. proceed to Part III, during which they write a dissertation which must be presented not more than two years following registration.

Institutional Setting and Facilities:

The School of Agriculture and Forest Sciences integrates the study of agriculture, forestry, soil science and wood science into a single academic structure and aims to address changing land use patterns throughout the world through cooperation and integration among these traditional disciplines. The role of environmental management is receiving increasing emphasis in all courses, particularly through the M.Sc. in Rural Resource Management. The College has a Centre for Arid Zone Studies which draws on staff from all areas of the College and from the Institute of Terrestrial Ecology in Bangor.

Costs: Annual tuition costs are approximately \$12,000 (1990 estimate). Financing sources for previous students have included the World Bank, FINNIDA, ODA, and others.

Students: The M.Sc. in Environmental Forestry is suited for students with a non-forestry degree seeking a forestry education, and for individuals with a forestry or agricultural background seeking further specialization. However, a degree in agriculture or forestry, and/or extensive professional experience in tropical forestry, is required for acceptance into the "Advanced Agroforestry" module. The M.Sc. in Rural Resource Management requires an undergraduate degree or equivalent, with preference given to the following disciplines: biology, geography, agriculture, forestry, and environmental sciences. Applicants with degrees in other disciplines will be considered according to their individual merits.

Proficiency in English is essential, and English language training courses are offered at the University.

17. Institution: University for Peace
Apdo 199
1250 Escazu
COSTA RICA

Contact: Dr. Gerardo Budowski
Director, Natural Resources

or: Dr. Rolain Borel
Course Coordinator
Tel: 506/491324; Fax: 491929 or 534227

Training Course:

The University for Peace offers an annual three-week course entitled "Agroforestry: Sustainable Land Use for the Humid Tropics". The 1991 course will be offered from May 8 to May 24. Its principal objectives are to reinforce participants' understanding of traditional and innovative agroforestry systems with emphasis on physical, ecological, economic and social aspects of this discipline. The course considers standard management techniques for agroforestry species; appropriate methodologies for encouraging farmer participation in the development of improved systems; the successes and failures of agroforestry development projects in different agroecological zones in Costa Rica; current agroforestry research and development literature; carbon dioxide sequestration; nutrient cycling; native and exotic species, and other topics.

Thirty percent of the course is spent on field trips to examine a variety of agroforestry systems in Costa Rica. Participants will analyze case studies and make formal presentations of their work.

Institutional Setting and Facilities:

Since its creation in 1980, the University for Peace has organized various international agroforestry courses. Its staff includes agroforestry specialists with experience in teaching, research, and development. The agroforestry course has been taught three times since 1987. The campus is 15 km from San Jose and houses a specialized library. Lodging is available in San Jose.

Costs:

The cost of the course will be between \$2,000 and \$2,500, and includes tuition, materials, food, lodging, per diem, field trips, etc., but does not include the cost of international travel. Participants in the 1990 course were funded by the World Wildlife Fund (WWF), the U.S. Peace Corps, the Swiss Government, USAID, GTZ, Helvetas, and other sources.

Students: The course is limited to 25 participants, and is conducted in Spanish. Applicants must have sufficient knowledge of Spanish, a degree in agronomy, forestry, agricultural or forest economics, sociology, or a relevant field, and should be involved in a development project. The application deadline is March 15, 1991.

18. Institution: University of Melbourne
School of Agriculture and Forestry
Parkville 3052
AUSTRALIA

Contact: Professor D.J. Connor
Dr. R. Sands
Tel: (61-03)344.6390/5032; Fax: 344.5570/5104; Tlx: UNIMELB
AA35185

Program: The School of Agriculture and Forestry offers post-graduate diplomas (one-year) and research degrees (Master's and Ph.D.) in Agriculture and in Forestry which incorporate a specialization in agroforestry. Agroforestry is interpreted rather broadly to include any uses of trees in the rural landscape. At the post-graduate level, instruction in agroforestry is oriented primarily to tropical regions.

Masters and Ph.D. research degree programmes in agroforestry have been offered since 1985. The post-graduate programmes in Agricultural Science and in Forest Science have been specifically designed to meet the needs of international students, and over 130 students from over 20 countries have been enrolled over the past ten years. The recommended subjects for students in these programs specializing in agroforestry are: Agroforestry, Project in Agroforestry, Agricultural Systems, Forestry Systems, Rural Development, Field Studies, and Statistics and Experimental Design. Among the elective subjects also offered are such courses as: Introduction to Development Planning; Tropical Animal Production; Crop and Pasture Production; Soil Science; Crop and Pasture Pathology; Agricultural Economics; and Farm Business Management. During coursework, visits are made to research institutes, farms and forests within Victoria and in the tropical regions of northern Australia.

The programs are designed to provide advanced training for individuals currently involved in: teaching at universities and colleges; research planning and extension; and development planning and administration. The combination of coursework and field research is especially suited to experienced graduates moving into middle management positions and requiring a broad exposure to agricultural, horticultural and forestry processes. The coursework deliberately encourages an interdisciplinary training in biological, social and economic factors affecting agricultural and forestry systems. The research enables students to collect information in their chosen area of specialization.

Candidates who complete the first year of coursework at an honours standard are invited to transfer to the Master's programmes, or they may accept the Postgraduate Diploma and not proceed. The latter alternative may be attractive to candidates with limited time for postgraduate study. The Master's programme usually requires 12 to 15 months to complete, during which students undertake a supervised research project. Research projects may be located in Australia or overseas.

Institutional Setting and Facilities:

The School of Agriculture and Forestry is part of a large university of 20,000 students. Opportunities for field research and training are available at the University's own facilities and in cooperation with State Government Research Institutes. The University has animal, plant and soil laboratories at the Parkville campus in Melbourne. Staff in the Plant and Soil Science Section provide training in crop and pasture production, plant pathology and nutrition, soil nutrient relationships, and soil conservation. The Forestry Section has an extensive facility at the Creswick campus which includes laboratories, greenhouses, a controlled environment room, a microcomputer laboratory and remote sensing equipment. There is good access to a range of forest types. The faculty is involved in several large-scale agroforestry experiments in collaboration with the State Government Departments of Conservation and Environment, and Agriculture and Rural Affairs.

Agroforestry is playing an increasingly important role in the management of agricultural land in southern Australia, both for increased productivity and for the control of erosion and salinization. The intention of the School is to provide agroforestry specialists for Australia and for tropical countries. While most emphasis at the undergraduate level is on temperate Australia, the emphasis of the post-graduate level is oriented to the tropics.

Costs:

Tuition costs per academic year are approximately \$15,000, and living costs are about \$10,000 per year. Foreign students may obtain scholarships from various inter-governmental aid programs as well as the Australian Government Equity and Merit Scheme. The principal financial sponsorship for international students is from Australian foreign aid under the auspices of AIDAB, as well as UNFAO and the World Bank.

Students:

During 1989-1990 there were 50 foreign students enrolled in post-graduate diploma and masters programs. Of these, 12 are studying agroforestry as a coursework subject or a research project.

English language instruction is available at the University Language Centre and is a common part of the graduate diploma programme.

19. Institution: University of Oxford
Oxford Forestry Institute
Department of Plant Sciences
South Parks Road
Oxford OX1 3RB
UNITED KINGDOM

Contact: Mr. F.R. Miller
Course Coordinator
Tel: (44-0865)275000; Fax: 275074; Telex: 83147 VIA OR G

Training Course:

The Oxford Forestry Institute offers a thirteen-week annual course entitled "Rural Development Forestry". In 1991, the course will be held from June 26 to September 26. The course is designed to build professional competence in Rural Development Forestry, of which social forestry and agroforestry are two major components. Compulsory topics include:

- 1) Agroforestry: a review of agroforestry systems and an examination of the scope and potential of agroforestry for improving land use, especially in the tropics;
- 2) Rural Sociology and Economics: an analysis of the sociology and anthropology of rural populations in the context of communal ownership and resource allocation, and their impacts on the development of social forestry;
- 3) Extension methodology;
- 4) Sustainable Development;
- 5) Cost Benefit Analysis;
- 6) Discounted Cash Flow Methodology.

Participants are also encouraged to study a range of topics which may be peripheral to their main interests but important to modern forestry, such as strategic planning, forest policy, remote sensing, environmental impact assessment, or other issues.

Institutional Setting and Facilities:

The Oxford Forestry Institute has been a center for tropical and temperate forestry research and education for over sixty years. Its activities encompass undergraduate and graduate teaching, national and international research, and consultancy work. It offers other short courses in Forestry

Planning and Management, Forest Research Methods, and
Forestry Microcomputer Applications.

- Costs:** The cost of the course is as follows (in British pounds):
tuition: 2,990; excursions/tours: 1,260; accommodations:
520; living allowance: 1,000; other allowances: 500;
TOTAL: 6,270. Scholarships are only available in
exceptional circumstances. Common financing sources are the
World Bank, the British Council, GTZ, UNFAO, CIDA, and ODA.
- Students:** During the previous two years, this course has had an
enrollment of sixteen and nine international students,
respectively. A degree in an agricultural or forest
science, with at least three years of experience, is usually
required. Candidates must be under 45 years of age.
English proficiency is required, and there are no English
language training opportunities.

20. Institution: University of the Philippines, Los Banos
Institute of Forest Conservation
College of Forestry
P.O. Box 434
4031 College, Laguna
THE PHILIPPINES

Contact: Director
Tel: (63-94)2268 or 3340; Telex: 4163 PTTLB PU

Training Course:

1) The University of the Philippines, Los Banos (UPLB) offers an eight-week course entitled "Agroforestry" (AGFOR) which covers basic principles, approaches, methods, and techniques in agroforestry design, implementation, monitoring and evaluation. It is designed to strengthen or broaden the technical capabilities of social forestry agents, forestry extension officers, teachers, researchers and others engaged in upland development projects.

Among the topics considered are: agroforestry system design using the ICRAF D & D methodology; biophysical and soil survey and analysis; socioeconomic and cultural survey and analysis; evaluation of species adaptability; agroforestry planning for a homelot or farmlot; soil and water conservation techniques; soil amelioration techniques; cultural management techniques for tree crops and other important forest plants, such as bamboo, palms, fibers, vines; cultural management techniques for horticultural crops (fruit, vegetable, medicinal and pesticidal crops) and agronomic crops (root and grain crops); livestock production; bee farming; mushroom culture; processing and marketing of agroforestry products; and financial and economic analysis of agroforestry projects.

Participants will engage in field and laboratory activities and prepare an agroforestry plan for a specific area. The course will next be offered from May 2 to June 26, 1991.

2) UPLB also offers a six week course entitled "Forestry for Community Development" (CODEV), which aims to develop foresters' capabilities in community development by providing them with basic principles, concepts, and lessons learned from community-level forest development programs. Participants learn appropriate supportive technologies and analyze and prepare community-based forest development plans of their own.

Topics considered include: theories, principles, and objectives of community development; consideration of the

family, team building, and community development strategies with regard to forestry; extension education for community development; community appraisal; communication strategies; agroforestry technologies; soil and water conservation techniques; agroforestry product harvesting, handling, and processing; human relations and motivational skills; decision-making tools; and project planning, monitoring, and evaluation. The next offering of this course is scheduled for 1992.

3) UPLB offers another six-week course entitled "Social Forestry Officers Development Course" (SFODC), which is designed to reinforce the management capabilities of development agents in integrating forestry with socio-economic development programs in rural communities. Topics include: concepts of social forestry as a strategy for economic and forest development; community and family dynamics and their significance for forestry development; social forestry technologies; and development and management capabilities for social forestry programs. This course will be offered from August 22 to October 2, 1991.

Institutional Setting and Facilities:

The Institute of Forest Conservation (IFC) is the extension and training unit of UPLB. In addition to its regular short course offerings, IFC also designs packages and conducts special courses and study tours upon request in many areas. For example, the IFC might arrange to offer the "Forestry for Community Development" course upon request in 1991, if at least four participants can be scheduled.

The four-thousand hectare Makiling Forest provides the venue for forestry field training, and on-site projects of various forestry agencies are also visited during course field trips. Each course draws on resource persons from the University, government agencies, and private organizations according to their expertise.

Costs: The costs for these courses have not yet been determined for 1991. However, based on 1990 figures the cost per course will probably amount to \$3,000.00 or more.

Students: UPLB courses are open to all levels of management personnel engaged in forestry or a related field, including administrators, teachers, trainers, researchers, rangers, law enforcers, and others. The agroforestry course is specifically directed at foresters, agriculturalists, and forest managers directly involved in the planning and implementation of agroforestry projects.

All courses are conducted in English.

21. Institution: University of Queensland
Department of Agriculture
Queensland, AUSTRALIA 4072

Contact: Dr. Ross C. Gutteridge
Overseas Projects Office
Tel: (61-07)3772807; Fax: 3710426; Tlx: UNIVQLD AA40315

Training Course:

The University of Queensland offers a seven-week course entitled "Fodder Tree Legumes - Multipurpose Species for Agriculture". The course aims to inform participants about the range of fodder tree legume species available to agriculture, to review their environmental adaptations, agronomy and management, and to examine their role in animal production, agroforestry, soil fertility improvement, and erosion control. The course consists of a series of lectures and field visits to experimental stations and commercial properties in tropical and subtropical regions of Australia.

This course was held for the first time in November/December 1990. It will next be held in November/December 1992, and will be offered every two years thereafter.

Institutional Setting and Facilities:

The Department of Agriculture of the University of Queensland specializes in teaching and research in tropical agriculture. The course described above receives institutional support from the Queensland Department of Primary Industries, the Queensland Forest Service, and the Commonwealth Scientific and Industrial Research Organization (CSIRO).

Costs: The cost of the course is approximately \$10,000.00. Previous students have obtained funding from the Australian International Development Assistance Bureau, the World Bank, UNFAO, the Asian Development Bank, and others.

Students: There were 29 foreign students enrolled in the first offering of the course. There is an opportunity for intensive English training at the University of Queensland prior to the commencement of the course. Participants should hold a university degree or equivalent.

22. Institution: University of Science and Technology
Institute of Renewable Natural Resources (IRNR)
Kumasi, GHANA

Contact: Director

Program: The Agroforestry Unit of the Institute of Renewable Natural Resources (IRNR) offers a one-year post-graduate diploma course in agroforestry. The program is principally targeted at staff of the Ministries of Agriculture and Land and Natural Resources and emphasizes practical training and field work. Upon termination of two semesters, students undertake a four-week field experience.

Courses offered through this program include: Concepts and Practices of Agroforestry; Land Evaluation and Classification; Fundamentals of Forestry for Agroforesters; Principles of Range, Wildlife and Freshwater Fisheries Management; Agroforestry Research Techniques; Fundamentals of Animal Science; Extension Methodology; and Fundamentals of Crop Science.

Institutional Setting and Facilities:

The University of Science and Technology established IRNR in 1982 to promote the proper management and use of Ghana's forests, savannas, wildlife, fisheries and watersheds. IRNR developed courses in agroforestry in response to a request by the Government of Ghana to train personnel to implement agroforestry projects. IRNR has also been involved with agroforestry training programs, and has run short courses in agroforestry with an emphasis on alley farming at the request of the Ministry of Agriculture. IRNR has established agroforestry research and demonstration plots at its farm on the University campus. Field trips are also taken to other areas of Ghana.

Costs: Tuition costs are not available.

Students: The course is open to individuals with a B.S. in a relevant discipline or with relevant experience, although the course is targeted primarily at government officials.

23. Institution: Wageningen Agricultural University
Forestry Department
P.O. Box 342
6700 AH Wageningen
The Netherlands

Contact: Dr. W.B.J. Jonkers

or: International Education Office
P.O. Box 453
6700 AL Wageningen
The Netherlands
Tel: (31-83) 7082680; Fax: 7082419; Telex: NL 45854

Program: The Wageningen Agricultural University provides for the study of social forestry issues in tropical countries as part of its Master of Science degree program in Tropical Forestry. The program comprises twenty-two months of lectures, practicals and thesis research and is divided into four structural components:

1) The core program is mandatory and covers subjects relating to various aspects of forestry and rural development. It includes a course entitled "Agroforestry Ecosystems".

2) One of two orientations in "Social Forestry" and "Forest Ecology and Silviculture" is selected; the "Orientation Social Forestry" includes an agroforestry component, and offers courses entitled "Forestry and Rural Development", "Farming Systems Analysis", "Appropriate Technology in Forestry and Agroforestry/Minor Forest Products", and others.

3) Thesis research includes a minimum of two months of field or laboratory work, usually in a tropical country.

4) An individual program is comprised of individually selected courses.

The first M.Sc. course in Tropical Forestry began in December 1986 with seven participants from four countries. The number of participants has increased each year.

Institutional Setting and Facilities:

The Wageningen Agricultural University is a single faculty institution with 700 teaching staff, including more than 100 full professors, many with extensive international experience on bilateral and multilateral projects,

consultancies, and faculty building in developing countries. The University's teaching and research areas include

forestry, plant and animal sciences, rural sociology, economics, nutrition and food sciences, and environmental sciences. In addition to the M.Sc. in Tropical Forestry, the University also offers M.Sc. courses in "Animal Production and Aquaculture", "Crop Science", "Management of Agricultural Knowledge Systems", and "Soil and Water". M.Sc. courses in preparation include "Ecological Agriculture", "Geographic Information Systems for Rural Application", and "Biotechnology".

There are modern research and education facilities available at the University, as well as a number of research projects in developing countries for thesis research. The city of Wageningen, which hosts many independent agricultural research institutes, is one of the largest centers of agricultural education and research in Europe. Wageningen Agricultural University is one of the founding members of NATURA, the European network of Agricultural Universities.

Costs: The cost of study at the University is approximately US\$14,000 per year.

Students: Previous students have been funded by Dutch, Finnish, and Norwegian development agencies, United Nations agencies, and governments of tropical countries. The University requires a B.S. in forestry or a related discipline as well as proficiency in English. English language training courses and language laboratory facilities are available.

III. ADDITIONAL INSTITUTIONS OF INTEREST

The following list contains entries for agroforestry training opportunities for which we were unable to gather sufficient information. Also included are training opportunities that are not specifically oriented toward agroforestry. These were included on the assumption that these opportunities might be of interest to people working in agroforestry.

1. Institution: BAIF Development Research Foundation
"Kamdhenu"
Senapati Bapat Marg
Pune, India 411 016

Contact: Dr. Manibhai Desai
President

Program: BAIF began as an agricultural research institute in 1946. It has since then been expanded to include a variety of development related issues. It is a voluntary organization dedicated to socio-economic reconstruction of the rural poor. Human development is the focal point of the unique BAIF approach. It creates awareness, motivates action and provides methods of self-reliance through application of science and technology. The institute engages in various training activities and publishes a variety of pamphlets and manuals. It also produces manuals for trainers. Some of the program areas that BAIF is involved in include watershed planning, afforestation, and bioenergy.

Training courses are held at any of 6 regional offices. There is no specific information available on these courses.

Institutional Setting and Facilities:

BAIF has central research facilities for cattle and agricultural development and animal health. There is also an information resource center for distribution of training materials. The 6 regional centers are bases for training and extension, as well as some community based research.

Costs: No information available. There is no indication of any charges for training courses.

Students: No information available. It seems that training courses are aimed at Indian communities.

2. Institution: New Mexico State University
Department of Agronomy and Horticulture
P.O. Box 3Q
Las Cruces, New Mexico 88003-0017

Contact: Rich Phillips
Farm Superintendent and Researcher
Tel: (505) 646-2729; Fax: (505) 646-6041

Training Program:

NMSU offers a month-long course in "Forest Nursery Production and Seedling Establishment for Developing Countries" from May 20 to June 14. The course is a combination of classroom, laboratory and field experiences, exposing the participants to all aspects of tree production in nurseries: seeds, nursery design, seedling quality assessment and control, micorrhizae and rhizobium, insects and diseases, field establishment etc. The course also looks at management of time, personnel and records. There is a section on extension also.

As part of the course, participants will travel to either northern New Mexico to tour Forest Service nurseries and seed labs there, or to Mexico to observe nursery production with lower technology.

Institutional Setting and Facilities:

The course will be held on campus, which has all the laboratory, field, library and computer facilities normally found at a public university.

Costs: The course cost is \$2400. This does not include travel to or from the site, nor does it include housing. Lodging and food is available on campus at a cost of about \$200/week.

Students: This is the first time this course is offered. The staff represents experience ranging from U.S. industry to developing country projects. The course is open to anyone and can be taught in either Spanish or English. There is no financial assistance available at this time.

3. Institution: Organization for Tropical Studies (OTS) (La Organizacion para Estudios Tropicales (OET))
Oficina Centroamericana
Apartado 676
2050 San Pedro de Montes de Oca
Costa Rica
(506) 36-6696

North American Office
P.O. Box DM, Duke Station
Durham, North Carolina 27706
(919) 684-5774

Contact: Jose Maria Rodriguez

or Martha Rosemeyer

Training Program:

OTS offers a six-week course in Agroecology (OTS 91-7) in June 1991. Taught in Spanish by Dr. M.E. Swisher, the course will develop the capability to study agroecosystems, both from the biological as well as ecological perspectives. The course is an intensive 6-week session which will consist of field visits to a variety of distinct environments, both biophysical and socio-economic. During that time, participants will develop the ability to define the problems found in agroecosystems, as well as propose and research possible solutions.

Another OTS course, held for 8 weeks starting in June 1991, is Tropical Managed Ecosystems (OTS 91-4). This course is conducted in English and will take place mostly in the field. The course focuses on agriculture and forest management, looking at a variety of agricultural systems including two agroforestry systems. The instructors for the course are Dr. David Andow and Dr. Margeret Reeves.

OTS offers other courses on various topics pertaining to tropical biology, ecology and development. There is an agroforestry course listed, but no information was available.

Institutional Setting and Facilities

OTS is an international research organization dedicated improving natural resource management in the tropics. It was established in 1963 and has offices in Durham, North Carolina and San Jose, Costa Rica. In Costa Rica, OTS runs three research stations: La Selva, the Wilson Botanical

Garden and the Palo Verde Station. The 3800 acres of rainforest known as La Selva is located in the Atlantic lowlands of northeastern Costa Rica, adjacent to the 110,000 acre Braulio Carrillo National Park. Primarily undisturbed forest, La Selva has been rated as one of the four premier sites for tropical moist forest research. The 390 acre botanical garden is located at mid-elevation in soueastern Costa Rica and is celebrated as one of the most significant collections of ornamental and economic plants in Central America. The Palo Verde Station is situated within the Refugio Rafael Lucas Rodriguez Caballero, a wildlife reserve of some 23,000 acres located in northwestern Costa Rica.

Costs: Costs for the agroecology course are approximately \$3400 (US) which includes room, board, transportation in Costa Rica and course materials. Student is responsible for transportation to Costa Rica and personal expenses. Some funding is available through OTS for citizens from Latin American or Caribbean countries. However, this funding is limited and very competitive. OTS looks favorably on students that have obtained funding, even partial, through outside sources. OTS can provide a list of previous students' funding sources.

Tuition for Tropical Managed Ecosystems is \$3000, or \$1000 for students from OTS member institutions. Students from Latin American OTS member institutions are eligible for additional fellowships to a maximum of \$800. Personal expenses and transportation to Costa Rica are extra.

Students: Students from universities which are OTS members are accepted to both courses, although entrance is highly competitive. A minimum of a bachelor's degree in agronomy, ecology, biology, rural sociology is required for entrance into the Agroecology course. It is designed for as a forum for sharing of ideas and information between professionals, professors and students from these different fields. Students can earn up to 6 graduate level credits at the University of Costa Rica.

Entrance into the Tropical Managed Ecosystems is limited to students who have completed at least 4 graduate level classes and are in the early stages of planning their thesis or dissertation. Although the course is taught in English, knowledge of Spanish is recommended. No language training is available at OTS.

4. **Institution:** Ridgetown College of Agricultural Technology
Main Street
Ridgetown, Ontario Canada n0p 2c0

Contact: Chris Nanni
Course Coordinator

Program: The college offers a course in agroforestry every winter semester (Jan-April). For further information, contact the course coordinator.

The college is hosting the second annual symposium on windbreaks and agroforestry, from June 2-7, 1991.

Institutional Setting and Facilities:

For information, contact the registrar's office.

Costs: For information, contact the registrar's office.

Students: For information, contact the registrar's office.

5. Institution: SEMEO-BIOTROP
Southeast Asian Regional Center for Tropical Biology
P.O. Box 17
Bogor, Indonesia
Tel: (0251)323848; Tlx: 48299 BIOTRO IA; Cable: BIOTROP

Contact: Ruben C. Umaly, Ph.D
Deputy Director

Training Program:

A training course on Management of Forest Genetic Resources and Agroforestry Areas was offered in September 1989. During that course, a symposium was held on Agroforestry Systems and Technologies. The course focused on protecting and managing genetic diversity within agroforestry systems. The Center does not have any agroforestry courses scheduled for the future, since they are offered on a rotational basis.

Institutional Setting and Facilities:

The Center has offices and dormitories as well as some sports facilities. There is also a library which is open to trainees. It has 13,000 books, 1057 bound journals, brochures and reprints and 1110 running serials.

Costs: The cost of the previous course was \$1,119.00 which covered all expenses except for travel to the Center.

Students: Requirements for previous courses included citizenship in one of the SEMEO countries, a minimum of a B.Sc. in agriculture, biology or forestry, and English proficiency. Scholarships are available on a limited basis. Contact the Center for more information.


6. **Institution:** University of Ibadan
Department of Forest Resource Management
Ibadan, Nigeria
- Contact:** Prof. L.C. Nwoboshi
Professor of Silviculture and Department Director
- Training Program:**
The university offers a M.Sc in Agroforestry. No other information was available.
- Institutional Setting and Facilities:**
No specific information was available, however, IITA is located in Ibadan.
- Costs:** No information available. Previous students have been funded by ICRAF and their home governments.
- Students:** A B.Sc. in either forestry or agricultural sciences is required. There is no information as to whether courses are offered in English or French.

IV. APPENDIX
SAMPLE QUESTIONNAIRE

PLEASE COMPLETE THE FOLLOWING. IF MORE SPACE IS NEEDED,
PLEASE ATTACH SEPARATE SHEETS

1. Name of Institution:
2. Name and Title of contact person:
3. Mailing address:
4. If Training Course or Seminar give name:
5. If Degree Program give name:
6. Type of Degree(s) or Certificate(s) granted:
7. Brief description of Course or Program content:
8. If Training Course or Seminar, please indicate the number of times the course(s) has been offered in the past 5 years:
9. Admission requirements for foreign students:
10. English language training opportunities:
11. Number of foreign students enrolled 1989-1990:
12. Financing sources for previous students:
13. Cost in US dollars for the course or program. If degree program, please indicate cost/year for foreign participants (including cost of living -- if relevant):
14. Scholarship possibilities (if relevant):
15. Setting and important facilities of the school:
16. Other:

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